Snake-Bite in West Bengal

Edited by

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Juktibadi Sanskritik Sanstha
Canning

Snake-Bite in West Bengal
A Collection by Juktibadi Sanskritik Sanstha, Canning, South 24 Parganas

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For those snake-bite victims who have lost
their valuable lives and those who have tried
their level best to save their life.

Content

Foreword

This collection is the brainchild of *Juktibadi Sanskritik Sanstha, Canning* (JSSC) and its leader Bijon Bhattacharyay. Nowadays people specially erudite, dignified, elite people look down upon for any kind of talks regarding ideology or idealistic thoughts. But it is needless to say that JSSC is working in this 'cause' with some definite idelogy. Otherwise it would be impossible for them to organise this kind of sincerity or huge continuous, dull, stale, unprofitable effort for a 'cause'. Now what is this ideology? We can call this as a broadbased 'Humanism'. They have developed this idelogy seeing the sufferings of common man, the vast agricultural population of Sundarban. They feel for these poor people. Here JSSC is much more concern about any sort of trouble faced by the poor people of their locality. So it is natural that they would dedicate themselves in the activities or practice to the 'cause' of snake-bite as it is primarily a rural problem. It is meaningless to give any introduction the role of snake in our biosphere. But it is a fact that we loss yearly at least two thousand valuable lives with a disturbing regularity in our state. This is a matter of shame to our medics, to our health system, to our hi-tech modernise society of 21 st Century!

Here Bijon Bhattacharyay and his team are working hard, working day and night now with their 'Helpline' to cover up this shame of civilsed world. They are sincerely working in this area for the last twenty five years. Initially they did not get any help or support from any quarter. Now the Canning Sub-Divisional hospital has become a model treatment centre for snake-bite cases. JSSC has done it with huge courage, intelligence, sincerity and

they are now successful to highlight the problem at least among the informed section of our state. In spite of this effort of JSSC it is a matter of regret that JSSC has to face dire consequences in some situation in this matter. But that could not thwart their energy. As there are innumerable common men who love them, protect them, help them so that JSSC is marching ahead that is assured with publication of this collection. JSSC has accepted the challenge that they would create a situation where there would not be any death in West Bengal due to poisonous snake-bite. It is a sense of pride to us.

JSSC has created a culture of humanism around this abject poverty but in essence they practice a science. I have seen Bijon to arrange an experiment for long three days to observe the relationship between Banded Krait and Common Krait. In his nearby village farmhouse he was busy with a video camera in hand and constantly watching the behaviour of this two snakes kept under a mosquito-net. This scienctific attitude, this science-culture is the asset of JSSC.

However we are audacious enough to present before you this documentation as a form of collection with a little satisfaction. But remember it, this documentation is the result of our activities and field works of long years, not some kind of armchair speculation or hairsplitting academic discussion. In this matter we are grateful to the medics and non-medics who have contributed in this collection. We are grateful to National Rural Health Mission (NRHM), Govt. of West Bengal, Department of Health and Family Welfare for their kind solicitation. We are grateful to the compositer of our Printing Press Mr. Monoj Dey who have contributed much with some beautiful ideas. We are also grateful to all our members of JSSC and innumerable persons who have extended their generous hands to make this cause successful.

Editor

An Appeal

The area of work of 'Juktibadi Sanskritik Sanstha' is not much extensive but in the subtle and serious way they perform their whole activities in the South 24 Parganas district is really amazing and should draw anybody's attention. They have the objective at hand in the form of slogan 'No more death due to snake-bite'. With this objective they have developed a style of work that has been recognised by the general population and even by the Health department of West Bengal Government. This is a sense of pride to them.

The Sanstha including myself are struggling hard to combat the incidences of unnecessary and unfortunate deaths due to snake-bites. This is our broadbased welfare programme for the common masses. We are navigating with this expectation that ultimately we would be victorious. Side by side we want to preserve the species snake as a whole to just maintain an ecological balance. This is a very important agenda to be mentioned. However we expect in future this Sanstha would march to a long distance with its overall expectation.

Dr. Premchand Dey
President
Juktibadi Sanskritik Sanstha

Introduction

TO COUNTER SNAKE-BITES CALL HELPLINE – WHY ?

So surprising ! If a snake bites, it is mandatory to visit either "Ojha" (an exorcist) or "Hospital". However, due to superstition, people believe more on "Ojhas" (exorcists). That's why, everyday we come across advertisements stating "There is a revolution in working conditions of science organization." Even then, thousands of people falling in prey of these superstitious beliefs, as if they can regain after life. On the other hand, the urban people keep on cursing the rural people and their superstition.

Recently, with the help of National Rural Health Mission, West Bengal Govt., Juktibadi Sanskritik Sanstha, Canning, started a program on snakes, snake-bites and its remedies (2008-2009), in four blocks of Sundarbans. After the publicity of the program, groups of 4 to 5 people were formed, to educate the people that they should not treat snake-bites as casual incident and shy away. Proper remedial measures should be taken immediately and for this the organization had to provide its telephone nos., as people made earnest request that, "when the members of the organization won't be here and if anything of such happens, to whom we go for help ?"

After this, in the next six months, it so happened which was not at all expected.. Organisaiton received numerous phone-calls day and night. Plenty of questions : "Will you help us when we call ?" or "A snake has just bitten, what am I supposed to do ?" ..... And so on. We are extremely happy that at last we have been able to convince people about their responsibilities regarding snake bites.

If a snake bites, the direct connection of the villagers are "Ojha" or "Moulobi" – (people who use supernatural power), however, the indirect connection is "HELP", was beyond their thinking. In six months, from 11 blocks, we have received almost 220 calls. Out of which, 50 calls were related to snake-bites. Apart from these, we have received 10 calls regarding people who are already dead because of snake-bites and their relatives enquired about the compensation. 10 more cases of poisonous snake-bites which we were able to send them to the hospital have survived. It was good to see that when the organization was slowly progressing, just then, respectable people like Dr. Samar Roy, Dr. Rupankar Basu, etc., came forward and gave enormous support.

Opening ceremony of the 24 hrs. Helpline at Biswanath

Bhattacharyay Smrity Dighirpar Krishichakra, near Canning, on 20th Feb, 2010 was a grand success. Dr. Sachhidananda Sarkar (Asstt. Director – Women & Child) Health Deptt. Was present in the opening ceremony along with 32 other doctors and the villagers from Sagar, Patharpratima, Mathurapur, Jainagar, Kultali, Basanti, Gosaba, etc., who got help from the helpline. The necessity of the helpline was presented on stage by Dr. Samir Dey (Nilratan Sarkar Hospital), Dr. Suranjan Sanyal (Baruipur Mahakuma Hospital), Dr. Chandranath Das Gupta (Canning), Dr. P.G. Roy (Kolkata), Dr. B. K. Banerjee (Canning), Pravudan Halder (teacher), Narayan Ghosh (President, Canning – 1 Panchayat Samiti), Saibal Lahiri (Social worker & President of the organization), Dr. Premchand Dey, etc. The ceremony lasted till 4:30 p.m. Last year, the organization celebrated its Silver Jubilee Year in which the last soldier of the helpline was the "Doctors". As a result, to give proper service, we can move one pace ahead. On 22nd March, 2010, the helpline for snake-bites became active. By 25th of March, 2010, incidents of snake-bite occurred 40, out of which 20 cases were from South (24) Pgs, 2 from North 24 Pgs, 5 from East Midnapore, 4 from the West Midnapore, 3 from Burdwan, 3 from Murshidabad, etc. out of these only 14 people got admitted to the hospital, 2 people died. Number of people admitted in Nursing Home was 2 and among them 1 died.

Now, snake-bites cannot be left on fate. People have become cautious about it and they are coming forward to ask for help. People are going to the hospitals and egar to get more information on it.

Therefore, it has become obvious that Juktibadi Sanskritik Sanstha, Canning, plays an important mediating role between the doctors and the patient. It strengthens the bond among the three and non of us wants that death rate rise or confusion about snakes-bites all over. In that regard, a very important message from Jahira Bewa of 2nd Block said, "why you people did not come 9 months before, then my grand daughter would have been saved." However, with everyone's blessings and support, we want to convert this deed into history.

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Symptoms of Common Krait – bite

Bijon Bhattacharya

In the Sundarbans, specially in the 19 blocks (South 24 Pgs – 13, North 24 Pgs. – 16), activities of the Common Krait is frightening. There are few others like the Monocled Cobra, Banded Krait, etc. that are also poisonous snakes, and are active too. 25-30 years ago, poisonous snakes can be seen very often. Though they are poisonous but docile and thus don't bite until disturbed. There is an inner relationship between Banded Krait and Common Krait. Both these snakes are poisonous and come out at night. The inner-relation is proved in a document presented at Bengal Science Congress, that was accepted. Moreover, inner-relation is a result of disbalance between the Common Krait and Banded Krait. Since both the species are nocturnal, the numbers of Banded Krait (5-6 ft) are getting exit to Common Krait (3-4 ft) which are growing in numbers day by day. As such, bites and death from Common Krait and not Banded Krait are increasing.

Common Krait is the only snake in the world that climbs on to the bed and bites people who are asleep. It is being observed that, after bitten, the person at sleep does not feel the pain because the venom of Common Krait contains a substance known as Bungarus Toxin which leads the person to fall deep sleep. Usually after biting, Common Krait vanishes until it get caught in the mosquito net. If there is a small hole in the mosquito net, the Common Krait cannot resist itself from entering through it. The reason of such affinity is still under observation of Juktibadi Sanskritik Sanstha, Canning.

The main moto is that there should not be any death due to snake-bite. To fulfil this moto,Juktibadi Sanskritik Sanstha, has set its goal that if there is any incident of snake-bite, they will counter it. People are sent to hospital where immediate care could be taken. One such medicines, Antivenin Serum (AVS) is made available in hospitals and even today its supply is being maintained. All this was possible due to number of written request from the organization and it is a movement.

Members of the organization entered first time in a hospital in the year 1993, April. It is so happened that Bandana Halder, age 18, Kikarighata village, took her daughter to the local hospital in the evening, due to a rat snake-bite. Seeing it, the local village hospital doctor immediately referred her to Kolkata's Nilratan Sarkar Hospital. Bandana Halder was puzzled because being a female, it was impossible

for her to leave her village with her daughter. Moreover, Kolkata was an unknown place for her and at that hour in the night it was nearly impossible. So, finding no other way, Bandana Halder came in contact with the organization. Then the members of the organization and Bandana Halder went again to the village Hospital. They requested the doctor to treat the patient. She got cured and later asked for the attention of the organization. This is how the organization came into limelight.

In the same year, a female patient was referred to Kolkata by the local hospital. They came to the station but missed the train. At 4 a.m, seeing no other way, they came into the office of the organization which was situated near the Rly. station. The patient was laid on the bench in the office. She was almost half unconscious. We checked the spot of snake-bite and found that it was not that serious because the snake was not a poisonous one. Her husband brought the dead snake to the office and after observation we came to a conclusion that it was a wolf snake (feebly poisonous). The female-patient was provided with milk and cake and gradually her condition improved. Her husband was very happy at the hospitality shown by the organization. Slowly but steadily the people started gaining in confidence on us. We started paying regular visits in the hospitals on other peoples request. Sometime we received warm welcome and sometime a sort of sarcastic behaviour at hospitals.

In the year 1994, 14th July, a person whose name was Mihir Mondol, age 25, village – Nilmadhabpur, Block-Kultali, was admitted to Canning Hospital. A message was also sent to us. We came to know that, Mihir got bitten at his in-laws house. He was on bed and tried to switch-off the radio when the Common Krait bites him on the finger. Immediately they took him to an "Ojha" but there he became unconscious. With a thin ray of hope of survival, he was taken to local hospital. We learnt from their relatives that it was a non-poisonous snake but later when we saw the dead snake, we became sure that it was a Common Krait. It was the first time we were observing someone bitten by a Common Krait. At 12.30 p.m. his eyes closed and his legs became paralysed. After 2 p.m., his voice choked and whatever he could speak out was in nasal. At 4 O' clock he stopped talking and had breathing trouble. First at night the first AVS was pushed in his finger. Another 4 AVS was pushed into the saline. Slowly things became normal. At 12 noon, he was responding to the call of the doctors. Then at 4 O' clock in the evening he started speaking. By 4 a.m. he became normal.

Later on, we analysed the incident. The person stated that it was a peculiar situation that he had to undergo. His whole body except

the left hand gradually became paralysed. However it did not affect his brain. He stuffed in a cloth inside his mouth so that his mouth is not paralysed. He felt that he was having breathing trouble due to cough and his teeth slowly gripped the cloth that was put inside his mouth. Then he pushed the cloth with his left hand inside his mouth till it reached the throat. He was trying to free the cloth from the grip of the teeth. Later, in the same process, he took out the cloth form the mouth making it sure that the grip of the teeth was released. He also said that, he felt comfortable when he turned on his back instead of sitting straight. This way he cleaned his throat and the only fear he had was of death due to aspirartion of the secretions and mucous in his throat.

We felt that patients of snake-bites die due to tangling of secretions in the throat. Later, one important information we gathered from him is that even after 2 hrs. of snake-bite, there was tremendous pain in the body specially inside the stomach. Even though the AVS was injected, the patient felt much pain. We considered this example seriously for our future research. At times we felt that the patient might not survive.

There had been a situation when the nursing staff of the hospital increased the flow of the oxygen and at the same time, the doctor prescribed other different medicines to inject yet there was no improvement of the condition. Then we thought of swabing the throat of the patient. At that time, sucker machine was not available in the hospital so we had to stuff in guage into his throat to clear the secretions. So after sometimes, the patient felt good and started to breath normally. This way we have cured many more patients with the help of AVS injection and the success reminded us about Mihir Mondol, who showed the way of survival. It is not possible for a lone doctor to fight such cases. The Nurses sometime could not make up their mind that what to do at that point of time and thus it becomes too late. So, like some 5 -6 patients which we were able to make them survive, made us happy. However, the case of Mihir Mondol and the Common Krait has given us a lot of experience but at the same time put forward certain questions...!

In the year 1995, 10th August, time 8.30 p.m., a patient got admitted in the hospital named Ketaki Bera, age – 18, village Dholirbati, Canning. Our organization received the massage and we went to the hospital. It so happened that while going to bed that night, Ketaki Bera got bitten by a snake. When raised an alarm, her husband tried to locate the snake but nothing was found. She was immediately brought to the Canning Hospital. At the hospital, the doctor asked about the intelligence of the snake to the patient party

(with a sarcastic smile). It was learnt that the patient was pregnant for 3 months. Sometimes she felt a pain inside her stomach. She was offered a glass of hot milk and after having it, she felt comfortable. It was raining heavily and thus none other than the doctor could come to the hospital. I though were coming back but later pulled back from my decision. I found that the doctor was pretty nervous. In the meantime the patient passed urine and observing it the doctor said that it was a non-poisonous snake. However as soon as the patient complained about pain inside the stomach, the doctor pushed a vowel of AVS injection. It was 11 p.m., the patient party requested me to stay on for some more time. At 12 a.m., it was observed that apart from stomach ache, there was no other pain.

The next day, I visited the hospital again, I was told that after a futile try, doctor referred the patient to Kolkata. The patient party returned Canning in the evening and threatened that they would never spare the doctor. I asked the doctor to stay away form the hospital for at least 3 days. The doctor said that he could not sleep the whole night. His father was also a doctor. He kept on questioning him that whether he was serious about the patient or not. The doctor replied by saying that whole night he was by the side of the patient. Hearing this, his father asked him to take some rest. I had a word with the doctor for 4 hrs. In the next 2 days, there was a huge hype and confusion across the town regarding that death due to snake bite.

Later we came to know that Ketaki Bera was on fasting on the whole day. Due to stomach ache she did not take water. It can be possible because of the food she had taken last night or may be due to the poisonous effect of the snake. We did not get satisfactory answer regarding it.

After those incidents, the hospital authority became a bit suspicious about our program. Still then, the relatives of the snake-bite victims, we accompany them to the hospital. We observed carefully the symptoms of the dead patients. It was found that after the snake had bitten them, they were first taken to the "Ojha" (the exorcist) or a quack and when the situation went out of hand, they were brought to the hospital at the eleventh hour. Even though after the AVS injection those patients got cured. However, there were instances when the patient claimed that they were bitten by snakes but did not see it, in those cases the doctors are confused whether to inject AVS or not.

In the year 1999, 20th August, Jahira Bibi, age 55, village Amraberia (2 km from Canning) was admitted to hospital in the morning. Her husband killed the snake and burnt it. When I visited the hospital, I found the patient was almost senseless and AVS being injected. Before

this, 4 more AVS vials were injected. She was a patient of Common Krait-bite. I came back after staying for a while. At around 11.30 a.m, the patient party came running to our organizational office (which was Bina Nursery Shop near Rly. station since we did not have our own office) and said that the doctor had taken off the saline form the patient. I went to the hospital and saw that patient was speaking little bit. I notice the same symptoms of stomach ache, sore throat, eye-lids closing etc. Nurse said that the patient would be shifted to another room. The doctor analysed the situation and agreed to inject 4 more AVS. On 22nd, the patient returned home. We visited her house later and gathered the information about how it happened.

We came to a conclusion that doctor's are confused about injecting AVS. We keep on analyzing when the Common Krait bites what are the symptoms.

On 29th October, 2001, Nanda Rani Kayal, age – 13, Kurli – Baruipur, got admitted to the Canning Hospital (Kurali to Canning is 15 Kms). Our organization got the message, so I along with one of our members Amalendu Mondol left for the hospital. The patient party was known to our member Amalendu Mondol. They brought two snakes which was killed by them. One of the snake was crawling in the room and the other one was inside the mosquito net. One was a wolf snake and the other one was the poisonous Krait. In the meantime we found that the patient was recovering, but could not detect the spot where the snake has bitten. Only symptom left was joint-pain.

The doctors said that he has already started 2 AVS but slowly. This doctor always appreciates our work. After getting assurance from him, I came back. At around 10.15 a.m two people came panting . They informed that the condition of the patient is not good. She was having a problem like muscle pull, breathing difficulty, swollen stomach, etc. Asked them whether they have informed the doctor or not. They replied that they have come here first to inform us. First I scolded them, then we took a rickshaw and immediately went to the hospital. Still then the doctor was in the outdoor department. On hearing it, he rushed along with us to the patient. Condition was very critical. We had to insert catheter to the patient for urination. Pathologist, Dr. Pratyunno Patra, was checking the pulse of the patient. Hospital staff was all around us. In the meantime the patient-party broke down in tears, that the patient would not survive. Muscle pull was still there every 2 seconds. Doctor prescribed a medicine, most probably Lasix and after that no one know what to do. I went forward and whispered into the doctor's ear that the AVS is being injected slowly. He immediately increased the flow. Then it was observed that the muscle pull happened at a gap of 3-4 secs. (previously 2 secs).

Later I took the doctor aside and informed the experts of school of Tropical Medicine has confirmed that 4-5 AVS can be injected at a time. He said that since she was a child so doctor considered to administer it slowly. He then injected 2 more AVS (dust AVS) and within 15 mins. the patient got relieved from the frequent muscle pull. Then it started occuring at an interval of 6 secs and later at an interval of 15 sec. All of us got relieved. In the meantime the doctor went to the out door.

After consulting many experts over the phone, I was not happy. However, Dr. Ashok Banerjee enlightened me on a possibility. He said "In the most recent times, a researcher published an article in which she had discussed about water, nutrition etc. and its deficiency prevents the disease – symptoms to come out or come out delayed." Now, being late, it becomes rather impossible for proper treatment. He also said – "Look at the girl …. she is from a very poor family, skinny and hairs are tangled to each other.'' Yes, it was exactly what he said. Her mother traveled to Kolkata everyday to earn their livelihood and her father was unemployed. Judging these facts, my concept got cleared. Later, that girl got marriage. Her parents along with their neighbours thanked us for her survival. They even came forward and enquired about the symptoms of poisonous Common Krait bites. The doctors of the local hospital lended their hands towards our campaign.

On 26th June, 2002, at 2.30 p.m. Nakul Gayen age – 45, North Ralokhali, Canning – 1, was brought senseless to the Canning Hospital. Before being brought to the hospital, he was first taken to an "Ojha" (exorcist). While at the time of treatment, he fell unconscious. His family member informed that it was a case of snake-bite. However, doctors were suspicious because a person who was bitten by a snake cannot survive so long. In the meantime there were only 6 AVS left in the stock. After a lot of if's and but's, the doctor injected 2 vials of AVS. The condition of the patient improved. Later 2 more were injected, and around 5 p.m. he gave some response. At 7 p.m he slowly started talking. When asked about his name, he replied in a nasal voice. Next day, when I went to the hospital, I found him sitting by the side of the doctor. The doctor said that we had run out of stock of AVS but looking at his condition we did not refer him to other hospital. However, the incident which I will never forget – Nakul Gayen requested me to sit in front of the doctor. I was a bit shy (Nakul was sitting on the floor) but I managed to. Possibly he might have recognized my voice. He could not open his eyes. He stretched his eyelids to have a look at me. Then closed his eyes. He thanked me for saving him. Later while talking to him, I learnt what had actually

happened that day. His body was in pain, his stomach sprained and he was unable to take in any of the medicines due to immense pain in the throat.

Later we decided (Juktibadi Sanskritik Sanstha) that we would campaign about this in the Sundarban area's 19 block. Along with the reason of death caused by the snake-bite, we decided to carry the note of symptoms of Common Krait. So on 04-10-2002, we sent 7 teams to the areas of Gosaba Block (South 24 Pgs). We collected our travel expenses from donations. Every team was carrying 1 Kg of Sattoo (flour made of barley, maize, etc.) a glass and a plate. The team had to spend the nights at the mercy of the villagers. After 6 days of campaign, the team went to the Sagar Block. With the help of the analytical report of Mr. Sankar Bhattacharya we started the campaign and primarily from him we came to know that the symptoms of Common Krait bites and the observation of the hospital are more or less the same. The organization held campaign under the banner "No Death From Snake-Bites" ….. all round the year. This program desperately kept on with their enquiry and at the same time visiting hospitals and the observation were also done.

In the year 2006, the Canning Block Hospital's name was change to Mahakuma Hospital. Gradually, the number of the doctors and nurses increased in the hospital and if necessary, a nurse or a doctor used to give us a call and asked us to visit the hospital if any patient regarding snake-bite had come to the hospital.

We came to know that a doctor whose name was Dr. Shyamashis Das, of Nilratan Sarkar Hospital, had started a research on snake-bites. Asked the doctors of Canning to contact him without any ego. On the request of the member of the organization, Mr. Projapati Mondol (ECG Tech.) he came to the Canning Mahakuma Hospital on 13.11.06, at 2.00 p.m. He was very young and there were many senior doctors as well. A conference was held among 5 doctors and 15 nurses. It was learnt that he was doing his research on hematotoxin poison (Russell's Viper Snake). However, that time we were concerned with Cobra and Common Krait. In the end, the organization put forward their views on Common Krait. Immediately, a group of nurses interfered by saying that the patient who get admitted to the hospital never complained about stomach pain or joint pain. In answer, the organization stated that the patients came in so late that there was no need for such symptoms to be taken care of. Moreover, when a case history was made, usually those points get omitted. Senior doctors expressed their views that they should get more training on it because they did not study such cases, before. Dr. Shyamashis Das was quite interested in our observation and asked us to keep it up.

In the year 2007, there was a lot of confusion among the doctors regarding the snake-bite patients. This incident created a huge chaos. On 29.09.07, Dr. Prodipta Chakraborty, got down at Canning station and asked me to accompany him to visit a child who was a patient of snake-bite. It was 7 a.m. He also said that he had already started treatment as he felt it was a Common Krait-bite case. The treatment started last evening at 6.00. 2 AVS amp. were injected whole night, but as of then there was no improvement, of the child's health. Name of the patient was Supriya Naskar, age – 3 years and 9 months. Her father's name was Rajkumar of Basanti Block. In the morning, after having her breakfast, she went out to play with her friends. While playing, she fell down but could not get up on her own. When her mother picked her up, she complained about stomach ache. Mother took her to the local doctor but soon after she complained about chest pain. Later, she started to salivate. Around 12 noon, she could not stare her eyes. The local doctor surrendered by saying that they should then take her to the hospital.

Dr. Chakraborty said that around 6 p.m, when he was about to return home, Supriya was brought to him in unconscious condition. He assumed it a case of snake-bite. He immediately informed them that he would start of with the treatment but the patient party had to sign a bond, otherwise they could take her to the hospital in Kolkata, but could not guarantee whether she would safely reach there or not. Her mother informed that in the morning, she was perfectly O.K., but while playing she fell down and this was what had happened. After taking permission from the doctor-on-duty, 2 AVS was injected to her. In the mean time, Dr. Chakraborty left. Later he said, "I called up at night and asked about the condition of the child, but it was informed that neither improvement nor disimporvement had happened". Other doctors cautioned him that if the child did not survive then he would come under lots of pressure.

He immediately took off for the hospital after some time we reached the hospital with a member of the organization, Narayan Raha. We observed that 2 nurses along with senior doctors were about to start for treatment of meningitis. We spoke to Supriya's mother again. After questioning her, we got some clues. The child once complained of a pain on her right ear. On thorough checking, we found two teeth marks beside it. We took a photograph with a digital camera and in the photograph it was clearly indicated that those were teeth marks. Immediately there was a chaos in the hospital. the senior doctors happily asked the nurses to stop the treatment they were about to start. About 5-6 doctors came and examined her but made no comment. In the meantime, the nurse said that we

should inform Dr. Chakraborty, who was already there in the outdoor. On getting the message, Dr. Chakraborty rushed inside and instructed to inject AVS without a break. Soon after, he hugged us and aid that because of us the child got saved. We shyed away and said all the credit goes to you as you all were taking care of her. About 10 AVS were injected and finally, she recovered. Observation of Common Krait was then becoming a success. It also helped us in gaining lots of self confidence.

On 2nd October, 2007, Gourab Sardar, age – 11, father – Khudiram, village – Taltala, Canning – 1, got admitted in the Canning Hospital. Someone knocked at the door and I saw a person standing in front of my gate with a slip from the hospital. It was written about requirement of 4 Neostigmine. This medicine was normally used for snake-bites but due to irregular Govt. supply, it was not available. Even the pharmacy ran out of supply. In the mean time, a member of the organization, Bimal Mondol, bought 100 Ampul for him. When asked them about the snake-bites, they quickly responded by saying that it was not a case of snake-bite. It was pain in the stomach. However, the doctor confirmed, that it was a case of snake-bite. We reached hospital with the Neomistigmine Medicine. There we met Dr. Chakraborty. The patient had tremendous pain in the stomach and breathing trouble. We learnt that early in the morning, due to sever pain in the stomach, he went to his mother and asked her to message by soap and water. Later, when he complained of chest pain, his family members brought him to the hospital. Within 30 minutes, 10 AVS were injected. At 7.20 a.m there was no breathing trouble. Dr. Chakraborty pointed out that the condition of his Chest was not good. He hoped for the best. At 8 a.m again there was breathing trouble. Neostigmine, Atropin and few more medicines were injected. 2 AVS was also injected. At 8.35 a.m, with a slurr voice, the patient asked for water. At 9 a.m, he opened his eyes but after sometime it got closed. Breathing trouble is happening at intervals. Finally, at 9.45 a.m conditions were under control.

The pathetic part happened the next day early in the morning. Another doctor who was on duty, referred the patient to Kolkata. At last he got admitted in the P.G. Hospital, Kolkata. However, doctor's there refused to start of with the treatment because the primary treatment of snake-bite was done from Canning Hospital. They suggested different pathological tests. While the tests were on, Gourab sat up on his bed and said he was hungry. Everyone was delighted. He got cured without any treatment. Even the illiterate people said that the treatment done by the Canning Hospital saved the child. The news spreaded far and wide. It was surprising that

abnormal stomach ache led to the treatment of Common Krait bite but such pain in the stomach was never observed. The positive part was that the analysis of the organisation was welcomed by Dr. Samar Roy, Dr. Chakraborty, and others. The confidence they had shown had no words to explain.

Observations of the symptoms of the Common Krait opened many avenues in the area of research. With the help of the Honourable Minister of Health & Family, West Bengal and National Rural Health Mission's donation, the Juktibadi Sanskritik Sanstha, Canning, got the responsibility regarding the campaign on "Snake-bites and their Remedies". A 2 member team was sent in each block to look after and supervise work accordingly.

South 24 Parganas district is heavily infested with Common Krait (*Kalaj*). So it is natural that maximum number of snake-bite deaths occur here due to *Kalaj*-bite. We have compared the sign-symptoms of at least three hundred *Kala*j-bite cases. Along with we have the case histories from all over West Bengal after introduction of our 'Help-Line'. Comparing all this sign-symptoms we have come to the conclusion that the sign-symptoms expressed after *Kalaj*-bite are in the following sequence.

1. Pain abdomen, waking from sleep, commonly occur at midnight or late night. Children cry violently.
2. Joint pain, sometime it occur simultaneously with pain abdomen.
3. Urge of defaecation, tenesmus.
4. Intense nausea, sometime it occur simultaneously with tenesmus.
5. Severe bodyache that do not allow the patient to keep hand over her body.
6. Respiratory distress, sense of compression of chest. Children suffer from intense drowsiness.
7. Sore throat.
8. Salivation.
9. Drooping of the upper eyelid.

Generally after *Kalaj*-bite the victim falls into more deep sleep and this phase continue for another two and a half hours. Then gradually she develops all the above symptoms. As the victim is bewildered and confused or as she does not know that she has been bitten by snake so she cannot narrate the symptoms systematically or with that exactness. However we give top most prioroty to take case histories whenever patient is carried to hospital. We think this is an essential art on the part of the physician to save the life of a *Kalaj*-bite victim.

The Story of Common Krait

Dr. Basudev Mukhopadhyay

The common krait (*Kalaj*) and its bite has become the common parables and threat to the people of the district of South 24 Parganas. Because it is the cause of innumerable deaths of this area. So it is a terror in this district. It is a fact that Sundarban is infested with various types of poisonous snake as it is covered by mangroove forest and rivers and canals with a huge marshy-lands. But incidences of *Kalaj*-bite in Sundarban have toppled all our accounts. Just imagine one miligram of its poison is sufficient to kill an adult person. The venom is chiefly neurotoxin and the bitten person deteriorates rapidly. Though there is much less or almost no complication after its bite that we see in a case of Viper bite. There is chance of one percent loss of renal cortical tissue in delay of treatment for one hour. The *Kalaj*-bite patient presents with some typical and some atypical symptoms. The typical symptoms are respiratory distress, drooping of the upper eyelid, severe bodyache and joint pains, gradual loss of consciousness etc. But there is some atypical symptoms such as 'pain abdomen' and repeated urge of daefecation.

But it has not been written in the text book of medicine with due importance. So even the experienced attending doctor who is not familiar with this symptoms will misdiagnose it as a case of diarrhoea or indigestion. Apart it is become much more difficult to diagnose this patient as a case of snake-bite as oftenly the bite mark is not visible specially in the skin of coloured person. Yes it is a riddle and only an experienced clinical eye would arrange immediate intravenous drip of ten ampoules AVS. However after continious publicity by the members of the 'Juktibadi' about the matter now people know that pain abdomen and diarrhoea may be the symptom of snake-bite. This awareness have helped to that extent that people residing surrounding Canning Sub-Divisional hospital take no time to reach to the hospital and they get the best possible treatment in a rural set up. And there is no death case in snake-bite in this hospital.

Actually snake-bite death is completely a rural problem. Dim light around the mudhouse, rubbish cowdung collected for fuel in a corner, poultry animals searching for food of the small thachet and a small bed by the side of the stable. This is the ideal place for a poisonous snake to reside as a cool, calm place. So any disturbance or irritation scare the repitle and it usually bites as a self-defence. This is an usual picture of the habitat of the poor people in rural area. So they die of neglect

and lack of treatment that is not usually available in the remote rural area. If there is any incidence of snake-bite at about 7 p.m. evening it would take earliest about 7 to 8 hours to reach any hospital where AVS is available. This is simply the lack of transport and communication in Sundarban areas. And if the night is of pervading thunderstorm then it would be impossible to shift the person.

Moreover the doctors attending the patient in a health centre or Rural hospital are not always prepared to treat such type of cases. There is 'grave risk' as if the patient die then the doctor would be in much difficulties. So they would refer the case to Kolkata at the name of better treatment or dialysis. Actually in most cases the doctors are not equipped to handle such cases. They have their reason that they have got no training in their course-curriculum in undergraduate study how to handle a snake-bite case. So they avoid it. Here the important thing is, precious time is lost to treat and to save the life of the patient. Many patients die due to lack of timely intervention. And this is the root cause of innumerable snake-bite deaths in rural areas.

If it is treated timely and properly there is no problem or hazard in a *Kalaj*-bite case. Because here the poison is neurotoxin so if it is neutralised by sufficient amount of AVS it would not left any trace of complication. Here timely intervention is very much important otherwise there may arise various neurological deficits though the patient survives after treatment. But this is not the case of Viper (*Chandrabora*) that is much more prevalent in other parts of Bengal. In this case the poison is mainly haemotoxin and it would prevent coagulation of the blood internally which ultimately creates renal shutdown. So here treating only with AVS is not enough, within a short period of time we have to shift him for dialysis. And dialysis is only available in some of the Medical Colleges at Kolkata. On the other hand it is a blessing for the Sundarban people that Viper is not prevalent here. So much so that if AVS is given timely and with proper dose it can create magic to a patient who is in death bed. But here the question of the workers who are searching pillar to the post and doing survey works regarding snake-bite cases is, why *Kalaj* prefers man's habitat? Why it prefers human bed?

In any measurement *Kalaj* is a very innocent repitle but it is a silent killer. There are innumerable cases where the person bitten by the snake or his/her family members can not even imagine that it may be a case of snake-bite. In the dead of night when a live, vibrant toddler is in deep sleep at his bed in the verandah or inside house he does not know that a deadly snake is with him. He gets the bite and remain asleep or creates some restlessness within sleep. In the

morning he developed various emergency problems and even unconsciousness. He has been rushed to 'Ojha' or a quack or for any kind of indigenous method killing more time for any scientific treatment. However when he is ultimately taken to any equipped centre for snake-bite management he was already expired. This is the usual story for any snake-bite case of Sundarban area. Now the question is why *Kalaj* prefers the human bed or as a whole human habitat so much? We do not know the answer. The relax, peaceful night bed turns to a death-bed for the Sundarban people. What a horrible quality of life for a remotely residing rural people! After a day of huge physical labour he is terrorised at the time of rest. He or any of his family members may be bitten by *Kalaj*, the deadly poisonous snake.

The members of the 'Juktibadi' are continiously searching for the answer. They have done extensive survey works in all the blocks of Sundarban and they have found some perplexing data. Actually *Kalaj* is the food of Banded Krait but due to some ecological imbalance, Banded Krait is rapidly vanishing from this area so there is an abundant growth and multiplication of *Kalaj*. They have found another reason for intrusion of *Kalaj* to the human habitat. As 'ghar chiti' is the food of *Kalaj* so it is in search of food and gets encounter at the human habitat. We are not sure of the reasons, we have to prove it but it is fact that in Sundarban *Kalaj* is the main culprit at least in 80% cases and it is creating havoc. Now the question is how can we get rid of this dreaded Kalaj.

It is the experiences of any volunteer of 'Juktibadi' —

1. Here any snake-bite case should be suspected as a *Kalaj*-bite if not proved otherwise.

2. *Kalaj* can silently bite a person in his or her bed dead at night.

3. Usually the patient would die at morning if immediate action has not been taken.

4. There may be no bite mark visible in case of *Kalaj*.

5. After getting *Kalaj*- bite the person may fell asleep as there is no immediate sign/symptoms.

6. This is the observation regarding innumerable cases noted by the volunteers during their survey that most of the 'heart attack' deaths occured at night were actually death due to *Kalaj*-bite that had gone unnoticed.

Just consider it, we try our level best to save a patient who is suffering from some deadly disease or cancer. Now otherwise a healthy, normal boy suddenly gets the bite at night and succumb to death at morning. What a painful tragic incidence of advancement of 21st century. It is obvious from our survey that of all the death cases young generation

is the worst sufferer. It is true that they are helpless, cannot save themselves and cannot speak their problem properly. When it is realised then already much valuable time has lost. So they received the brunt of the bite.

All the volunteers of 'Juktibadi' after studying every cases in deatils come to the conclusion that there is only two solutions for this problem. One is prevention that can be done by awaring the people so that after any snake-bite case they can assure the victim and after proper immobilisation carry the patient to a state hospital where there is facility of treatment with AVS. Second thing is AVS should be there in the health centres and hospitals and there doctor should have the courage enough to start the treatment of the patient as quick as possible to avoid any complications.

Few years ago it was seen that people were going to the house of Ojha or quack avoiding the road that leads to hospital. And obviously after the death of the patient it was carried away in the river by a 'mandas'. For long continued propaganda activities of 'Juktibadi Sanstha' of Canning the sub-divisional hospital has became the ideal place for treatment of snake-bite cases. All the doctors and paramedics are doing there an excellent job. Though they admit that it would not be possible without the guidance of the 'Juktibadi Sanstha'. They have done it with much courage. Now this is a history. The 'Sanstha' has challenged to the people of Sundarban with the slogan 'not a single death due to snake-bite'.

Now we can hope that the experiences of the 'Juktibadi Sanstha' and the doctors of the Canning hospital would immenesly help the people of West Bengal if not India regarding combating snake-bite cases. Their achievement would spread to all of our backward society like fire. All of our society then could realise that if Canning can achieve this amount of success then anybody can achieve this. Then only we would be assured that there would be not a single death due to snake-bite. This would be the real success story of the 'Help-line'.

Conclusion

For a long continued period people of South 24-Parganas are helplessly dying due to *Kalaj*-bite. It took some amount of time to realise the fact to the 'Juktibadi Sanstha'. After realising the problem the 'Sanstha' has chalked out some rigorous long protracted struggle against all kinds of backward thinking, mystic beliefs and utter ignorance. For the last 25 years they are struggling and now there is a sea-change. Take an example.

In the venom of Kalaj there is some toxin which primarily attack the soft tissue of the intestine. So after its bite patient complains of

'pain abdomen' and along with they have diarrhoea or sense of incomplete evacuation. Now think if a toddler complain of pain abdomen or diarrhoea it would be difficult for the parents to imagine that it is caused by *Kalaj*-bite. So this complain is naturally ignored as nothing significant and we have to sacrifice much more young children (hecatomb?) to develop this knowledge, even developing this knowledge to the attending doctors. Because when a patient reached to the hospital with this symptom it was difficult to convince a doctor that it might be due to *Kalaj*-bite as in a coloured person there is little chance to get a bite mark specially in the case of *Kalaj*-bite.

Anybody can take the history of this episode from any member of the 'Juktibadi Sanstha'. They have done door to door survey and afterwards convinced that this pain abdomen, diarrhoeal symptoms are due to *Kalaj*-bite. But they are not doctors, they have no right to treat a snake-bite patient. At best they can appeal to a doctor to treat such a patient with ten ampoules of AVS. If the attending doctor is not familiar with this symptom he would not allow his patient to be treated with AVS. Many times the helpless member of 'Sanstha' failed to convince the doctor. Frequently being confused in this complex situation they referred the case to a 'big' hospital. But in the meantime the valuable time is lost so the patient expired on the way or reaching at the 'big' hospital. This is the tragedy for innumerable cases. Still it is happening all over West Bengal.

The next and most important point is as the people get the neglect regarding patient-care in a snake-bite case so they are not at all eager to carry the patient to the hospital. Just consider the case, after much persuasion the 'Sanstha' member is successful to carry the patient to the hospital but then if that hospital or the doctor does not care for immediate management of this dying patient then they would accuse the member of the 'Sanstha' for this harrasement and the member would be in a very embarrasing situation. So the people are still much eager to carry the patient to a 'Ojha' *i. e.* the traditional healer or a village doctor for pain abdomen. Still people believe that the doctor or hospital is not competant enough to treat a snake-bite case as they frequently refer this cases to a 'big' hospital.

Last and not the least that the members of the 'Samiti' have to struggle hard with the doctors of Canning hospital for storage of AVS and it would be much more difficult if they do not find few beautiful doctors who have the courage to implement and to depend on their scientific knowledge. Actually doctors are shaky about their lack of training. If any untoward incidence happens they have to face dire consequences. This is the point that the members of 'Sanstha' have shouldered the responsibility. Actually they have given the leadership.

Bed-rock of Juktibadi Sanskritik Sanstha, Canning

Dr. Ashok Bandyopadhyay, Dr. Basudev Mukhopadhyay, Dr. Tapas Bhattacharyay, Dr. Chandranath Dasgupta, Dr. Sekhar Bhowmick, Dr. P. G. Roy, Dr. Nirmalendu Nath, Dr. Dilip Some, Dr. Madhabilata Roy, Dr. Sagarika Bhattacharyay, Dr. Prantar Chakraborty, Dr. Keshab Sinha Roy, Dr. Nishith Paul, Dr. Pijush Kanti Sarkar, Dr. Nikhil Mandal, Dr. Ashok Kumar Bhattacharyay, Dr. Bishnupada Chakraborty, Dr. Amiya Kumar Hati, Dr. Rabin Chatterjee, Dr. Jayanta Das, Dr. Rupankar Bose, Dr. Ujjal Halder, Dr. Sushil Saha, Dr. Dayalbandhu Majumdar, Dr. Samar Roy, Dr. Subir Dasgupta, Dr. Goutam Mondal, Dr. Suranjan Sanyal, Dr. Pradipta Chakraborty, Dr. Abhirup Banerjee, Dr. Shyamasis Das, Dr. Shibaram Majhi, Dr. Kunal Chowdhury, Dr. Salil Pal, Dr. Pratunya Patra, Dr. Bidyutkrishna Goswami, Gobinda Mandal, Tapan Bhattacharyay, Bimal Mandal, Tapas Chatterjee, Diptadhi Mukherjee, Beas Mukherjee, Bera Sen, Pijush Dasgupta, Bankim Dutta, Srijan Sen, Sajahan Siraj, Pravash Biswas, Akbar, Sukumar Debnath, Chitta Guha, Kajal Sen, Arun Kumar Mondal, Sasankasekhar Naskar, Tapankanti Rudra, Soumen Pal, Ashim Dutta.

We are greatful to Jt. Secretary, Govt. of West Bengal. Department of Health and Family Welfare, Mr. D. K. Chakraborty in-charge of National Rural Health Mission. He is the key person who has initiated the programme of ‘Help-Line’ set-up In our organisation.

Personal Notes

A case-history

Projapati Mondal

On 05.07.2010 at about 2-30 a.m. we the people in 'Help-line for snake-bite (henceforth 'Help-line') ' arranged by the 'Juktibadi Sanskritik Sanstha, Canning' received a telephone call from the B.M.O.H Dr. Palash Roy of Hingalgunj of North 24-Parganas district of Sundarban that a lady named Usha Gayen aged 46 years, hindu female was bitten by a poisonous snake. The incidence happened at about 2 p.m. and after cunsultation with local quacks and applying some indigenous methods they have reached to the hospital at about 2-15 a.m. She was then in a semi-unconscious state with a huge swelling in her bite site at the right hand. Her respiration was irregular so the doctor started treating the patient as an emergency measure giving 5 ampules of AVS as a loading dose and he contacted a senior colleague named Dr. Samar Roy. Junior Roy then wanted to know from senior Roy what to do next.

This is a custom of our 'Help-line' that we contact with other senior doctors for any emergency help and inform the juniors accordingly to call his senior for any help. Dr. Samar Roy opined that as there is no Viper snakes in the Sundarban area, so probably it was a bite of common krait (*Kalaj*) and the huge swelling was due to tight knot. Then Dr. Samar Roy was again contacted at about 2-40 a.m., and at about 3 a.m. He advised that she should be given another 4 ampules of AVS immediately and 10 ampules through intravenous drip as time was running fast so there would be little chance to give required amount of AVS afterwards. But the important medicine Neostigmine was not at hand of the treating doctor.

At about 4-20 a.m. Dr. Palash Roy informed that after treating the patient according to the instructions of the senior the condition of the patient was stable, there was no further deterioration and it seemed that she was improving. At about 7-10 a.m. Dr. Samar Roy informed the 'Help-line' jokingly that the patient was eager to take puffed rice! However he also recommended to continue the AVS slowly as she was complaining of sore throat.

At 8-20 a.m. 'Help-line' rang back Dr. Palash Roy and Dr. Roy responded with much excitement that he had not imagined that the patient would be out of danger so quickly. Now he eagerly wanted to know the telephone numbers of her family members so that they can be informed about the improvement of the patient.

At about 2 p.m. her son was informed about the news. He resides at Samsernagar of Hingalgunj. Her son was overwhelmed hearing the news of the 'rebirth' of his mother. Repeatedly he gave thanks to 'Help-line' as they have arranged the whole matter. However 'Help-line' described it to him that it was the victory of the doctor who treated the patient with much courage and against various unfavourable circumstances.

Then the son described the situation reagarding the incidence of his mother's accident. Immediately he decided after the snake-bite that he would go to hospital but there was an incidence of conflict among two groups regarding distribution of 'Ayela' money and immediately there was a transport strike. So she has been taken to an 'Ojha', as the 'Ojha' is a renowned person. Apart from that she had been treated and managed by many persons with all the indigenous methods. However after all the measures failed then there was a concise opinion that she should be transported immediately to the Primary Health Centre at Jogeshgunj. She was taken to the Health Centre after much difficulties. But there doctors referred him by ambulance to Block Primary Health Centre as there was no antivenin ready at hand. Ambulance needs fuel charges so the son needed money to meet all the expenses and he returned home to collect money with the intention to go to the BPHC at Hingalgunj. He was sure that it was not possible for her mother to survive in this precarious general condition.

However he reached to BPHC with much difficulties at about 7 a.m. next morning and he saw his mother was still alive and with a good condition. So he was overwhelmed and wanted to know from the doctor how this miracle was done. Dr. Palash Roy narrated him the phone calls of 'Help-line' and the role of the members of 'Juktibadi Sanskritik Sanstha, Canning' have played.

On 06.07.10. *i.e.* on the next day one of the members of Sanstha Tushar Kanti Dhali reached the hospital where the patient was still there. Though she was discharged but a huge gathering of at least fifity persons surrounding her are waiting to see the 'angel' of the Sanstha. It is an indescribable situtaion where people are continiously gathering to have a look on the stature of the person who has helped to save the life of this aged woman. Now sufficiently embarrased Tushar candidly admit that what has happened is the handyworks of the doctors and hospital staffs, we have not done anything for patient-care. The doctor who was by the side of Tushar, smiled. The son of that woman burst into tears saying, ‘‘if you people were not there it would not be possible to save the life of my mother. I get back my

mother for you.'' The patient Usha Gayen uttered with full of tears, I was at the verge of death, the doctor had struggled to snatch me from the hand of 'Yama'. Speaking thus she covered her eyes with her garments. The BMOH also admitted ''Whatever I have done it was by the instructions of the seniors. Without their help and courage it would not be possible for me to take such aggressive steps in patient-care. Yes we have save the life of the patient who was in death-bed.''

However the 'Help-line' gets innumerable phone calls after this incidence from Samsernagar. People are eagerly waiting there for a workshop, regular show, various awareness activities and they have promised to help the members of the Sanstha for any kind of help. What a tremedous victory of a cause after such an incidence!

The Facts that Shaken me

Dr. Rupankar Bose

There are two separate incidents that has shaken my professional life.

I still remember that day. It was a breezy afternoon. I was aimlessly walking in the hospital compound after lunch. There was no hurry, OPD had just closed and only 3/4 patients were admitted in the indoor. Suddenly I noticed few villagers gathered in the hospital varandah. Nursing staff hurriedly came across to me and asked me to attend them. I immediately went there and found that a young guy was lying listless on the ground. A few women sitting around the boy and were crying incessently. I asked them, what the matter was but none replied.

Now I carefully examined the boy and found no sign of life in the body. The cold wave transmitted in my body and perspiration started, literally I was drenched, I could not guess how that happened.

Suddenly a little boy pulled my hand and showed me that a snake was in the pot.

In the meantime an old man pulled one dead presumably monocled cobra about three and a half feet long with smashed head from the pot with the help of a bamboo stick.

The story is like this:

The victim was passing through the village road with his bicycle. Suddenly he saw a cobra on the paddy field. All on a sudden he jumped from his cycle and ran behind the cobra. After a difficult chasing he was able to catch the tail of that cobra while that cobra almost pushed its head to the nesthole. Somehow he pulled it and grabed the snake.

The boy thought that he had done a great job and must be shown to all of his neighbours. In one hand he grabed the snake and with

the otherhand he controlled his bicycle. The village road was not smooth rather bumpy and somehow his grip was loosened and the cobra utilise the opportunity.

When he had reached the village he stunned every villager what he had done. Now as time passed gradually venom reached its peak and a little later he became unconscious.

The ignorant villagers first killed the cobra and as they noticed the serious condition of the boy they brought him to 'Ojha'. Ojha after muttering some 'mantra' tried to show his virtue of lore but it did not work. So the clever Ojha referred the boy to hospital. Now we have nothing to do except shedding tears.

Meanwhile two decades had passed I have seen a large number of snake-bite cases of which mostly were non-poisonous snake. We had to keep those patients under observation with reassuarance, providing some first aid and discharged them when they were out of danger. Of course we had to apply polyvalent AVS and to manage poisonous snake-bite cases. But we are fortunate enough that not a single casualty occured upto date since then.

Last year another incident that really open my eyes. Again in another fine breezy afternoon Bijonda of 'Juktibadi Sanstha' called upon me. At that time I was really busy to visit one of my closest relative in Kolkata hospital. Bijonda was serious and what I realised from his distant phone call that a pregnant women of very remote village of Sundarban had been bitten by some poisonous snake but unfortunately her family members did not allow her to go for modern treatment and they had already consulted with a 'Gunin' and followed his advice. A school-teacher who lived nearby repeatedly rang up Bijonbabu to do something for that poor women. Over telephone 'tug of war' begun and ultimately they have convinced the family to come to hospital and that teacher had to accompany them. Now Bijonda again rang up and requested me so that the lady must be treated at Canning Hospital.

I with the help of my friend contacted then on duty M.O. and requested him to admit the patient. But the doctor hesitated as the condition of the patient is very serious and he was in the opinion to refer the patient to any Medical College of Kolkata. After repeated request and assuarance the doctor convinced and started treatment with AVS. Ultimately the patient recovered. Again tear came to my eyes but this time out of joy. I realise the meaning of the proverb, ' Where there is a will there is a way.'

Science and technology has given us a lot. Herpetologists have done some excellent job. Doctors, paramedics, social workers working together to aware the people that snakes are not foe although 'venom'

is poisonous and again we have to treat every single snake-bite case with due care. Our BPHC are equipped with AVS so that we can start treatment of any snake-bite case in all the blocks of West Bengal. A lot of money is being spent to combat this situation. But we find that every year a good number of population die of snake-bite. Why? We have not found out the answer.

One thing it is clear that media is not playing its requisite role to combat the situation. Snake is a mystry, false belief, fantasy, myth and entertainment so that it can hit the box-office. In this situation we can set the example of 'Juktibadi Sanskritik Sanstha, Canning'. They are doing a commendable job through their 'Help-line'. They are doing a Yoman's service by continiously awaring the people to take the advantage of modern medicine in any snake-bite case.

Manasa and Medicine

Beas Mukherjee

My maternal uncle's house is at village Hijaldiha of district Bankura near Bisnupur town. The village is surrounded by my beautiful childhood memory of luxuriant growth. My uncles are primarily occupied with agricultural works. I was then reading at twelve class and residing at Durgapur town with my parents. Suddenly one fine morning we received a telephone call that informed us that one of my maternal uncles was seriously ill and we should attend him as quick as possible. As my mother is a nursing staff so in any pretext regularly we received such calls whether it is for pain abdomen or for any other serious medical emergency.

However after repeated enquiry over phone we could not ascertain the cause of uncle's serious illness. They only responded with burst out tears and thump out their chest. However initially we did not consider the matter as that much serious. As it is their habit to make a mountain out of a molehill. But this time the condition was much serious as we were informed that he was vomiting out blood and often loosing his consciousness.

With much anxiety and tension we reached the station and saw as if there was a scene of a funeral procession surrounding the patient was created. Somebody were thumping out their chest, somebody were crying, somebody were giving serious lectures. And somebody were also very busy to arrange the worship of 'diety Manasa'. Amidst this hue and cry there were nobody to attend my maternal uncle!

What we could realise hearing the story that at morning about 10

a.m. my uncle while supervising agricultural works was bitten by something at his right halux. He could not see anything even could not identify any bite-mark. So he just ignored it and continued his work till twilight. There was no sign at the local area so he did not bother about the matter. But at about dusk while returning home he complained of some amount of uncomfort feeling to aunty. It was a malaise feeling, pain abdomen and afterwards he started vomiting out blood.

But the diagnosis of the villagers regarding this illness should be appreciated. They said it was the handiwork of 'sapkati' that was the wrath of *mother manasa*. They had done this only considering the sign-symptoms of the patient. They had confirmed it as the bite of 'Chandrabora' (Russell Viper). It is amazing to see the naive sense of diagnosis! But they failed regarding providing treatment methods. They were unanimously opined that it would be cured only if my grandmother and aunty could satisfy the wrath of our village god 'Manasa' who was somehow annoyed with us and had given that punishment. Hearing all this conversation I was bewildered.

This village is declared as a 'total literate village' and a sizeable number of members of its population are much educated and highly placed. How it is possible that we are declaring this is the century of advancement while are bowing to quail the wrath of 'Ma Manasa' and sacrifice our beloved one to the godess without any reason! Amidst all confusion I saw my mother who was furious seeing all this rubbish and was very busy to shift my uncle to Bisnupur hospital for immediate intervention. Meanwhile condition of uncle was deteriorating. Now I can understand he was then terribly ill and struggling hard to overcome the haemotoxic poisoning of Viper venom.

However we could not get any treatment from Bisnupur hospital. Though we lost two valuable hours. In the pretext of dialysis they simply refer the case to Bankura Medical College. We rushed to the said hospital to save the life of my uncle. It took another two hours to reach the hospital at the emergency ward. Already it was overcrowded and my parents ran pillar to post to admit my uncle and to start treatment. However my father suddenly got in touch with a previously known doctor who was then posted there. Now we could expect that drastic intervention was possible. This series of events was a active training to me, learning from life experiences which is much more important than any theoretical knowledge. Perhaps that was the first occasion that I spent a sleepless night with much anxiety and tension to realise the struggle of some persons to save the life of our beleoved one. This struggle gave much confidence to my

worldview. Later I thought that was much more than any text book teachings and it is essential to such type of teenager like us.

However my uncle was seen lying listless in the hospital bed and gradually improving. At about noon the doctors gave us the assurance that my uncle was out of danger but still he was in a critical condition as his kidneys were damaged to some extent. However we were now relieved that at least we could save the life of a person from the wrath of 'Ma Manasa'. The horror of the sight sent a chill down my spine. If in this way we had killed much more time by worshipping 'Manasa' what would be the result. And still this is the condition of our vast rural population throwing their kins at the mercy of destiny knowing fully well that it is a poisnous snake-bite and it is treatable. There is also neglect *i.e.* omission and commission on the part of medics, that I have seen on my own eyes which inspired me to become a doctor so that I can try throught out my life to give some assistance to those people who are really helpless.

Lucid Interval

Diptadhi Mukherjee

I am reading in the final year of Calcutta National Medical College. Few days ago suddenly I received a phone call from one of my neighbours that a boy was bitten by snake and local doctors referred him to Kolkata. That urchin is very much known to me. They are my close neighbours. They were coming to Kolkata. At the time of examination this is a most irritating news. I could easily understand that he needs dialysis and I had to make some arrangement here at Kolkata, so that the boy would get immediate care. But it is not an easy task to make any arrangement at any State Medical College.

Often my known village people come to me for medical help and I have to do it. They are poor, illiterate and helpless. It is advantegeous to arrange something for a cold case. But it is a hot case! The problems would be multiplied with the passage of time. If you receive such a phone call at the evening it is sure that you have to pass a sleepless night. So I have to be ready.

After a brief discussion what was my conclusion that it was a Viper bite. While preparation for bathing on their home-side pond, clearing the hyacinth at the bank of the pond he was bitten. He caught the snake but let it pass as it had no fault. What a merciful person! They carried him to the Sadar hospital but they denied him any treatment as there was no facility for dialysis and there was possibility of kidney-damage. So after giving few vials of AVS they just referred

the boy to Kolkata.

Discussing the problems with our seniors and classmates my confusion aggravated. There was no guarantee that the venture would succeed specially any arrangement for dialysis, if needed. His family members were ready to pay admitting him in any Nursing Home where there was facility for dialysis. Everybody opined that S.S.K.M. was the best place but it was impossible to get a bed there. Actually I do not know what is best or worst because we have no training in this matter in our course and it is impossible to conclude something confidently without the first hand knowledge. As it is not possible to get first hand knowledge on everything so we have to depends on others and that may be helpful or bewildering. That frustrating condition happened to me. Our station-wagon whriled through the dark depths of almost the whole city. However at the kind of one of my seniors at last spending six valuable hours we could manage to admit him at Sambhunath Pandit hospital. They had started treatment including dialysis.

In the evening I talked to the patient and he was in fine condition. The family members were also satisfied. I returned to hostel, they stayed at the waiting room of the hospital. In the early morning I woke up at the phone call and received the massage that Binoy had expired. This news perplexed me, how it could be possible. He was in a nice condition at the evening and died at night. Was the well being the deceptive lucid interval?

The Wrath of Manasa

Alpana Bandyopadhyay

It was a long twenty eight years when I joined to State Health Department as health worker and posted at my own village in the Murshidabad district. One evening at about 8 p.m. a boy vigorously knocked at the door and informed me at my house that an youth of Namopara, he was the son of Bisan Majhi, was bitten by a snake while at the time of defaecation by the side of the big marsh in the evening. When I was preparing to visit the place at that dark evening, my family members objected but I thought it was my responsibility to see the patient and gave some assistance at least assurance. So I asked the boy to accompany me to Bisan Majhi's house. Reaching there I could easily understand they were expecting that I could do some help to them.

For a long time few families of fisherman are residing at the outskirt of village by the side of the marsh. They are engaged in

their profession at the Ganjetic marshland. However I was then much young, I hadn't much experiences but I had been informed by our Medical Officer of the health centre that snake-bite is an medical emergency condition. The victim Subodh, 23/24 years old was visibly scared and almost lying on the country cot in the middle of the varandah. When he was bitten by snake at about 7p.m. evening and now it was 10 p.m. The bitten leg was swollen whether due to tight knot or local poisoning, it was dificult to guess. But they were not sitting ideal. Already they had tried with Ojha, Gunin and various indigenous methods. The main objective of all of them were to asertain as to what extent the poison had spread.

In this situation anybody could suggest anything and that would be honoured. In the meantime somebody suggested that Dharma Das Acharya of Bamunpara became a reknowned Gunin of snake-bite cases. He had learnt the treatment procedure through dream. Then and there somebody rushed to Dharma Das's house. I was standing in midst of all this chaos in a perplexed situation and could not decide what to do. There were many senior members of our village. It was very difficult to dominate them with my weak personality. Yet I suggested them in a low voice," It will be better to go to hospital". But nobody bothered to my suggestions.

In the meantime Subodh's wife and mother came to my side and there were other females of that lane. They narrate the story to me. Lifting the lantern I came nearer to Subodh with his mother and asked him about the incidence. He had not seen the snake nor he could recognise the snake. But it was something like a snake that entangled around his leg. After bite there was a terrible burning sensation so he rubbed lime at the bite site. I wanted to visualise the bite-site whether there was any bite-mark of a poisonous snake or not. But failed to detect anything in the dim light of lantern.

But I could easily realised that the situations are gradually running out of hand. So I persuade his mother so that he could be shifted to a hospital for treatment. But it was a fact that his mother was not in the controlling situation. In the meantime Dharma Das had came and took the control of the stage. He started his rituals chanting various mantras. I was standing helpless and counting time for this unfortunate youth but could not find any way out, yet could not left the patient. Suddenly I became firmed and determined that I had to do something.

This was not any matter of embarrasment but a simple apprehension. Suppose I pestered them to take the patient to hospital and after reaching their if the patient did not received proper care what would be their reaction. Apart it was not an easy task to reach

hospital in this night. The distance of BPHC and Sub-Divisional hospital from here is same. So it was better to go Sub-Divisional hospital but it would took at least four - five hours, crossing river and marsh and road and we needed necessary preparation. But I was determined to do something and started to persuade. I did not know from where I got that courage to lead this entourage, but in my mind I got the self-suggestion, do something at least try to save the life of this youth who is newly married. If any untoward incidence happens what would be the fate of this teen-aged girl. So I must made an effort.

Astonishingly the family members abided by my request. It seemed that they were also fade-up with all this hoax. However I got a stiff resistance from my family members but I accompanied them along with my assistance village-midwife (Daima) who was then by my side. It was a long journey in deed specially at that dead of night. However we reached the hospital in the dawn. With all my apprehension I could not find the on duty Medical Officer. Then I searched one of my previously known Medical Officer. I knocked him at his nearby residence and almost dragged him to see the patient. Reluctantly he examined my patient and opined that he should be immediately shifted to any Calcutta Medical College for dialysis. Still there was time. My heart started thumping at the name of Calcutta. Because Calcutta is three hundred Kilometer from here. Then again I pestered the Medical Officer if there was any way out. The Medical Officer stared me into immobility and said,"Are you a child, is it possible to perform dialysis here? The patient needs immediate dialysis." Saying all this he quickly escaped. But where I would go.

I could not face them any more and I could not see the face of Subodh. It might be the case of my brother or any close relative. After all what would be the fate of Subodh's teen-aged wife.

Waiting for sometime one of them said with a sigh of relief, ‘‘Let's go, nobody can erase the write of the forehead. After all it is the wrath of Manasa. We have to persuade Dharmadas again to do something more.’’

Snake-bite Treatment a Tiny Memory

Dr. Mita Mukohpadhyay

It was an incident that happened twenty seven years ago and now it is a bright, heavy but tiny memory of my youth. Then I was posted as Medical Officer at a Primary Health Centre in the Maldah district.

My other two colleagues were on leave and I myself alone the 'Daktarni' (the village people called a lady doctor in that word) was

managing the whole responsibility of the hospital. It was a busy centre. From early morning there were huge pressure both at the out-patient and in-patient wards. Patient were coming with a disturbing regularity. It was about 2p.m. yet I hadn't get the opportunity to take some food or rest. In the meantime one class iv staff informed me that there was a snake-bite case.

I came out of the room and saw that some Santhal people had gathered under the Banian tree outskirt of hospital premises. They carried an young lad in a bullock-cart who was bitten by a snake. I was a bit astonished to see them, as the tribal people are not accustomed to come to hospital in such cases. They prefer their own method and system. They generally avoid our treatment. That might be the cause that they stood at the outskirt with some hesitation.

I had many Santhal patients at that time. So I had tried to learn their language to understand them and actually learned something. In that young enthusiasm it was very useful to get familiar with them for better professional acquiantances. Now in this case also I invited them in their language to come to the hospital. They accepted my invitation and took the patient to hospital. Perhaps seeing my earnestness they took their patient from their country cot to the hospital bed.

A beautifully atheletic build young person of 18-20 years age was lying in front my eyes closing his eyes with the symptoms of respiratory difficulties. Relics of applications of various indigenous methods were still there all over his body. He had been bitten in the chest at the early morning. So there were marks of scald around the possible bite mark. He was Anil Hansda. As the bite marks were on the chest so there was no opportunity to give a knot. Initially he was captured by the traditional healers but ultimately a village schoolmaster forced them to go to hospital. Reluctantly they had come here. Though Anil was stout enough with his muscular healthy body but now he was in a listless condition due to neurotoxic envenometion. On examination I found all the obvious features of neurotoxicity throughout his body.

My hospital indoor was overcrowded so I started Anil's treatment at the floor. At that momemnt as if somebody was driving me, quick, quick much valuable time had already lost. So in no time I started a drip with full dose of AVS and other supporting medicines. Then I was a fresh graduate and had not that much experiences regarding treatment of snake-bite cases. Yet I had that courage that I knew the science. However in any suspicion I just went to my quarter and took the text books for consultation. Suppose I understood reading books that he needed more AVS to combat his symptoms. That was my

actual training and I thought my teachers were unseen but guiding me and inspiring me with necessary courage to treat this moribund patient. Now in my world there was only Anil and myself. He was struggling for one thing and I am struggling for another thing.

But that was not all I got distracted as I had to attend other serious patients. But I should praise my hospital staffs who had helped me throughout this struggle. Now it was evening and my caregiver of home, middleaged Sabitri was just like my aunt frequently enquired when I got some time to take some food. Ward-sister also requested me to go to quarter for some rest. So I was about to go then suddenly I felt lower part of my sari was stucked somewhere. While enquiry found that Anil had clasped it with his right hand. Still his upper eyelids were drooping yet he had senses and did not want to let me go. After keeping my hand over his forehead I said, "I am not leaving for much time, just leave me for ten minutes."

Still it was not possible for me to go so gave Sabitri necessary instructions. Gradually Anil's clouding condition began to clear. It took much time but after receiving 26 ampolues of AVS Anil stared at me with his steady eyes. I was convinced that the critical condition was over. However he was at the hospital for another three weeks. He was too weak to walk and gradually tried to walk with a stick. He developed neurological deficit of muscle paralysis of left eye. He was soft spoken and always kept himself accompanying me at the hospital and tried to help me in various works.

I forgot to say, in that very night they caught that snake and for my satisfaction carried it in an earthen jar crossing a long distance. It was a spectacled cobra.

While returning home once Anil visited me after two weeks. One fine morning at the front of my quarter I found Anil with two eggs in his hand and a bunch of onion-vegetables. I caught his both hands. He was a prize of my early career.

Rebirth

Prabhudan Haldar

Rain at night, about 2 P. M . Mousumi woke up from sleep and went to toilet and soon came back from there. She felt out of sorts because of burning and wriggling sensation in her belly. Her father Shibu Bar woke up and saw his daughter moaning in extreme pain. He did not know what to do at such a dead of night. Mousumi gradually became senseless. Within a few minutes saliva was secreting from her tongue. Some delirious thoughts crowded in their fading brain Shibu and his

wife assumed that snake might bite her. Then they took her from one exorcist to another but in vain, and thus wasted a long time. Mousumi was at that time, almost dead. Finding no other way they hired a machine-van and came to Basanti Primary Health Center with Mousumi lying unconsciously by their side at about 3-30 P.M. Dr.Sarat Halder, the B.M.O.H. heard the news of snake-bite and rushed to the spot together with his staffs. Then and there he started nursing the patient with his doctors, sisters and workers. They all accepted it as a challenge and proclaimed a hard combat against Death.

Then 32 AVS was injected into the body of the patient accompanied with other medical attentions to the patient. Death, in the long run, lagged behind. After four days of hard fight she came back home with a sweet smile on her little lips. 'Sankar more' at Basanti was flooded with mirth and merriment at the happy return of Mousumi from the jaws of Death. Mousumi was a loving little girl of eleven and a fond student of class VI in Sundarban Adarsha Vidyaniketan of which the teaching and non-teaching staffs started dancing in joy. They too expressed their gratitude to Dr. Halder and his staffs. Now all the inhabitants of 'Sankar More' and her parents regard Dr. Halder as representative of God for his life-giving power to the patients of snake-bite.

I could remember one such incident happened two years ago at 5 No Sonakhali in Choumatha. Minakshi, the pampered daughter of Arun Mondal and a favourite student of class IX in Basanti High School, was sleeping alone on the cot in her own study room. It was raining in torrents at night. Doors and windows are closed from within. On that night of torrential rain a 3 feet long KALAJ somehow entered the room and took refuge in the cot. All on a sudden the assassin bit just below her knee. She began to cry in pain. Her parents rushed in the room and began to search in the bed but found nothing. Within half an hour she was taken to the same hospital but in vain, only five AVS was injected into her body. Sadly enough that the then B.M.O.H. did not send any messenger to Canning hospital for AVS though huge AVS were stocked there in the same hospital. Minakshi thus became a victim of utter neglect and indifference. However, Minakshi was taken to S.S.K.M. Hospital by her parents at 10 A.M. but it was an irony of fate that she lost her blooming life forever there at 3 P.M. All the members of the family and her neighbours were lost in an endless grief. They burst into tremendous agitation and aggression against the utter carelessness of the B.M.O.H. and his attendants.

On this issue the 'Juktibadi Sanskriti Sanstha' of Canning was out in the field and with the help of local people started a movement

for sufficient AVS and proper medical care and attention towards the snake-bitten patients. Investigation was started and it was made clear that Minakshi died for the want of Neostigmin injection cost only three rupees. Basanti was upset with violent outrage of the people for the punishment of the guilty person. It resulted in the transfer of the B.M.O.H to a remote hospital in Basanti.

In his place comes Dr. Sarat Halder and since then he has been doing Yeoman's service not only in the field of snake-bite patients but also in the field of all other patients suffering from various diseases. Basanti Primary Health Centre now earns a good name in an ERA of ideal hospitals for his tireless efforts and sincere care and attention towards the patients of all classes. Thanks to him and his associates.

Long live Dr.SARAT HALDER.

If a snake bites or any other thing bites, let's go to the Hospital

Dr. Sarat Kumar Halder

It once happened that a girl, who was only 11 years old, told her mother that it seemed something had bitten her. Nothing was found after searching the bed. It was observed that there was two small spot on the place it was bitten. The girl did not feel much pain. At around 12.15 a.m, without thinking much, she went back to bed. At 1.15 a.m the girl complained about stomach ache, breathing trouble, etc. She felt as if some one was trying to throtle her.

The distance of the Hospital from her house was 25 min. Her family members took her to the Basanti Hospital. when she reached the Hospital, she started frothing, and could not open her eyes. Breathing trouble increased. We realised that due to the effect of the poison on the nerves, her body muscles were becoming paralysed and as such we had to start her treatment immediately.

I don't feel shy to state or accept that during my educational tenure, I never came in contact with such patients. I learnt from this case that there was a huge difference between the educational theory and practical experience. Self confidence cannot increase with the book knowledge. So, with courage we started the treatment. One thing I must say, that all our Hospital Staff co-operated with me, that day. For her, we managed to set-up an intensive care unit like situation. Apart from AVS, we arranged for all the life saving drugs which were available at the Hospital at that moment, and started injecting it, as per her requirement. We even arranged for medicines

like Neostigmin from away Canning Hospital. They even supplied us with AVS which we were running out of stock in our Hospital. we called the doctors over the phone whenever we required their help. The response we got from them were exceptional. We are grateful to them for this. They not only helped us in this case but many other cases as well. As such, because of an exceptional team-work, we could save the girl. I hailed from a village. In this regard, I remember an incident that took place just after few days when I went to study my medical course. Snake bites one boy from our village. This family members, instead of taking him to the Hospital, took him to the "Ojha" (exorcist). To check if there was any poison present in his body, the "Ojha" (exorcist) asked him to chew neem-leaves. In this way, they wasted some precious time that was required for his treatment, at Hospital. It was later observed that the symptoms were same as that of the other girl that I have mentioned already. As a result, due to lack of proper treatment, the boy had to lose his life. Even after death, his body was not spared. His body was held back and tried to frame some fairy tales to bring his life back, for the long 12-14 hrs.

Later, when the family members realized that the boy would never be alive again, they broke down in tears.

Anyway, things have changed now. Although people could not trust us completely as they have less confidence in the Govt. Hospitals. They still maintain their faith on the "Ojha" (exorcist). The incident I have stated about the girl too took away lots of energy from us, but still we did not give up. When we moved forward, we did get support of others. So, it is the duty of the Hospital to start AVS immediately to the snake-bite patients.

Medical Camps for people of Sundarban and other areas— down memory lane

Dr. Chandranath Dasgupta

I love forest and forest attracts me very much. That is why I clinged to Canning, known as the gateway of Sundarban (West Bengal). I spent long forty-five years of my life in practising medicine at Canning. Patients used to come to me from far off places of Sundarban for treatment. In mid sixties, when I started practising medicine at Canning, I was the only MBBS doctor at Canning. I always cherished in my mind to go to deep into the islands of Sundarban, mix with the

people there and treat them for their ailments.

After a long time my cherished desire came into truth. One day, in 1994, Sriman Bijan Bhattacharya, a devoted member of *Juktibadi Sanskritik Sanstha (JSS)* came to me with a request to participate in the medical camp being organized by them at Sundarban Islands. A few other physicians and I went to Sundarban by a launch of Sundarban Tiger Project to participate in the medical camp for the local people of isolated islands. The expenses of the entire programme were sponsored by the Sundarban Tiger Project. It was the beginning and after that I continued to visit different islands of Sundarbans to participate in the medical camps, came in close contact with the people of Sundarban Islands and realized their sufferings and miseries. As a physician my stay with the people of those islands was only for a short time in each spell but the pleasure I got in their association filled my heart with divinely satisfaction every time.

Now arriving at the fag end of my life I have forgotten the names of most of the physicians with whom I participated the medical camps. But the faces *of* (Drs.) Subrata and Utpal are still fresh in my mind. During our leisures while travelling by launch through the deep forest, it used to be highly enjoyable, a source of mental peace and eye soothing natural beauties. The atmosphere was calm and totally pollution free. Sitting on the deck of the vessel at night gossiping, laughing and singing are unforgettable memories.

At times, lives were in danger on the river during rough weather. Once in the month of Chaitra (March-April) when we were crossing a very big river, suddenly a dense black cloud gathered at North-East corner of the sky and immediately it followed with heavy rains and gale. We were only a few human faces on the boat with none in the visible distances all around. The vessel got tilted at a side and it was on the verge of capsizing. Our lives were saved only due to undaunted courage and astonishing presence of mind of the 'Sarang'(local name of the driver of launch vessel). On another incidence during rainy season, we had to wade through waist high saline water on paddy field to catch a country boat to reach the medical camp. Varieties of snake, poisonous and nonpoisonous, were lying dead as the place was inundated by saline water due to breach of the earthen river embankment. One more horrible experience was, that on a rainy day with strong wind while we were busy in examining the patients in a medical camp, all on a sudden Sriman Bijan rushed to the camp and informed us that the embankment of the river had breached and the flood water (saline) was rushing towards us with a great speed. Quickly we packed our boxes, came to river side and waited on the river

bank with horror. The country boats which were tied with rope with the trunks of trees on the bank of the river were found to move up and down violently on the rough river. Our 'Sarang' had taken the vessel to the other side of the river under a large tree to save the vessel from the thrust of storm. When storm subsided the vessel was brought to receive us but the Sarang did not find it safe to bring the vessel near bank due to rough weather. Then we got into the vessel which was about 60 ft. away from the river bank with the help of motorized boat. Being an aged person, I was always given additional care by all the members of the medical camp. My friend Sriman Prajapati was a highly enthusiastic person in all the medical camps.

In the month of October 1998, I along with the member of JSS went to Harishchandrapur, in the district of Malda to help the people of flood affected areas with medicine, cloths, rice, pulses and other essential items. A room of some local club was arranged for our night stay but the floor was badly muddy and uneven. We spent a sleepless night on the muddy and uneven floor spreading a thick black polythene sheet over it in the midst of profuse mosquitoes. There was no latrine/ urinal but the hospitality of the local people was unthinkable. Again in Nov. 2009 we went to Bongaon in the district of North 24 Parganas to help the flood affected people there. The Co-operation and help we received from Bankim Babu and Bibartan Babu and others were unforgettable. It was a great joy and mental satisfaction for me to stand by the flood affected helpless people. Immediate after the devastating cyclone 'Aila' on 25th May 2009 in the Sundarban we went to a number of places on 27th ,28th and 29th May, 2009 to help the distressed people affected by the cyclone. The scene of the devastation in terms of lives and properties was really horrible, unthinkable and indescribable. First day the room in which we organized the medical camp was 10' x 8' the thatched roof of which had blown off due to cyclone. In most of the places men and animals were living together in the same room. There was foul smell all around. Caracasses were lying here and there on the roads, bank of the rivers, and everywhere in the locality. Foul smell was intolerable. The other members of JSS and I tried to stand by the helpless people as much as I could with our very little capacity. In previous occasion we collected money, medicines, etc. from Canning market and donated it to Chief Minister's relief fund to help the super cyclone hit people of Orissa. Late Narayan Halder and Dr. Nikhil Mondal were amongst us.

Thus, at times of need and danger the other members of JSS and I always tried to stand by the flood and other natural calamity affected people and we felt great satisfaction out of it. I am grateful to the

almighty for giving me an opportunity to stand by the people in their distress.

Snake-bite and Ignorance

Dr. Dipak Das

There is an old saying that "signing a snake or meeting a tiger is only possible if it is in fate". We spent our childhood in Cooch-Behar (North Bengal). It is a very unusual incident that a snake has bitten some one here. The snakes which we come across are; checkered Keel buck, Rat snake, Spectacled Cobra, King Cobra, and few others. Due to joining service, at present I am at South 24 Pgs. Before, when we used to stay at Sonarpur, Kamrabad, West Bengal, I used to visit the Primary Health Centre, Baneshwar. I still remember the date, 31st December, 1992, my wife went out to buy something in the evening from a local shop. It was a bit dark, when accidentally she stepped on a snake's tail. Immediately the snake retaliated by bitting her. My wife was so scared that she started crying and the local people crowded around her. A few meters away, towards the railway track, there was a beetle shop of an exorcist (Ojha). She was taken to him. After examining her, he said that it seemed that it is a snake-bite but not of a poisonous one. So, he applied some lime over it.

After a slight recovery, she went to a registered doctor. On hearing her, he reacted quickly and asked her to get back to her husband as he was helpless. At that time we did not have mobile service in that area. There was no way to contact the hospital as well. If any accident happened, in that case the only way of contact was the wireless of the Usthi Police Station. Even electricity was not available.

Finding no other way, my wife came back home. Neighbours advised her to stay awake the whole night and taste salt at every interval to check if she felt the taste of the salt or not. She was under tremendous pressure and waited eagerly for my return from the Hospital.

The next day when I came back home, I saw her suffering from high fever. There was total silence in my area. Her cause of fever was high mental pressure. Immediately I took my wife to Nilratan Sarkar Hospital, Kolkata, where her treatment was done and then we returned home, after she recovered.

That day I learnt that if a snake-bites, what are the things we supposed to do and the knowledge of which we lack a lot.

Survey and Analysis

Snake-Bite : Observations and Reflections

Dr. Nirmalendu Nath

Birth and death are two vital events in human life. The first one is a pleasant one while the second one brings sorrow to the family. This deep mental distressful affair becomes more pathetic if the death of the dear one is effected by snake-bite. There exist various superstitions about snakes and snake-bite patients among the rural people. The rural people still now believe that the presence of venom in the human body due to snake- bite could be eliminated by the exorcist (Ojhas) or by the application of a sucker-stone generally known as 'venom stone', on the wounded part of the body. A section of the rural people even believe, the human body (dead) caused by a poisonous snake may be reanimated if the body after being floated in the river is able to draw attention of a master exorcist. Canning Juktibadi and Sanskritik Sanstha (CJSS) estimated that only in 4 blocks of South 24 Parganas, the number of deaths between 1993- 2002 due to snake–bite were around 349 and most of the deaths occurred due to high dependence on quacks and exorcist.

In order to abolish these prevailing superstitions from the mental frame of rural people CJSS for the last 20 years has been organizing various programme in various blocks of South 24 Parganas. So far, three different but related programmes have been adopted by CJSS. First, estimation of the number of deaths caused by snake-bite in these snake-bite prone district. Second, adoption of sustained awareness campaign about snake and treatment of snake-bite patients in the district. Third, inauguration of 'Help-Line' on 'Snake-bite' with a wider coverage of South Bengal. The estimation of the number of deaths caused by snake-bite was done by CJSS through an epidemiological household survey covering the eight snake-bite prone blocks of South 24 Parganas. This estimation was done for the period 2006-2009. Initially the awareness campaign about snakes and snake-bite patients was done at almost all important markets, ferryghats, fairs, schools etc., of South 24 Parganas. With the financial assistance from National Rural Health Mission (NRHM) in January,2008, this campaign was organized at the village level more particularly, at the 'Gram Sansad' level. Apart from these 'household level' and 'gram sansad' level activity from March 2010, CJSS extended free medical advice for snake-bite patients through 'Help-Line' centered at Canning. In the following pages, after a brief description of the socio-

economic condition of the eight selected blocks, we try to evaluate the results of these different but related programmes.

I

The District and Selected Blocks

The district of South 24 Parganas came into existence on March 1, 1986. Presently there are five subdivisions Alipore (Sadar), Baruipur, Canning, Diamond Harbour and Kakdwip, 29 blocks consisting of 312 Gram Panchayats and 7 Municipalities. South 24 Parganas is, indeed, a complex district, stretching from the metropolitan Kolkata to the remote riverine villages in the south up to the north of Bay of Bengal.

The eight selected blocks of the district under survey are Gosaba, Basanti, Joynagar-II, Kultali, Mathurapur-II, Pathar Pratima, Sagar and Namkhana. All these blocks belong to the southern part of the Dampier-Hendeges line. The southern part of the Dampier-Hendeges line consists of 13 blocks of South 24 Parganas and is commonly known as Sundarban. The northern part of the Sundarban have been settled long ago, the settlements in the southern part are of recent origin. The settlement in the south are more dispersed than those in the north.

The eight blocks under survey can be categorized into two regions. Some of them are now parts of the mainland which is connected by roads and having other infrastructural facilities typical of their rural counterparts in India. Under the South 24 Parganas, the areas under the administrative blocks of Joynagar-II, Mathurapur-II, Namkhana, fall almost entirely in this category. The people living in these areas are not in close proximity with the forest. But the blocks of Basanti, Gosaba, Kultali, Patharpratima and Sagar, together accounting for about 40 per cent of the total area of the district call for a special understanding of the people, their threat perceptions. They are almost entirely detached from the mainland and live under much different conditions unmatched in the rest of India. These are people living in islands on the fringes of Reserve Forest. The islands often face the forest on the other side of the separating river. The settlers initially lived mostly on agriculture with some viable amount of reclaimed cultivable land for each household.

The five island-blocks around forest boundary is featured by the co-existence of human settlement and reserved forest. Given a moderate density of population approximately 700 per Sq. Km. and low – lying nature of the area infested with various species of snakes, the incidence of snake bites is traditionally high in these blocks. Snake bite is a common problem in these areas and results in death in many cases.

According to Census 2001, the total population of South 24 Parganas is 6906689. In 2001, 25.06 per cent of the total population of the district and 61.95 per cent of total population of the Sunderban region are living in these 8 selected blocks. The socio-economic condition of the people living in these 8 blocks is described with the help of four parameters; a) female literacy rate, b) percentage of the small and marginal farmer household and agricultural labourer household, c) the percentage of household living below the poverty line and d) human development index. The value of the four parameters with respect to eight blocks are presented in Table -1.

Socio Economic Profile of selected blocks

Block	Density of Population	Female Literacy Rate	B.P.L. Household in %	Human Development Index	Bed per 10000 Population	Doctors per one lakh population	Infrastructural gap
Island Block							
Gosaba	751	56.60	38.02	0.54(27)	1.39	2.24	1
Basanti	689	44.30	64.59	0.50(29)	1.18	0.72	2
Kultali	614	44.60	46.36	0.59(18)	2.82	5.32	1
Patharpratima	595	60.60	49.15	0.56(23)	2.12	2.43	2
Sagar	658	67.10	44.46	0.55(24)	4.42	4.85	1
Non-Island Block							
Joynagar-II	1123	45.40	43.62	0.55(25)	2.49	4.30	1
Mathurapur-II	872	54.90	39.59	0.59(17)	4.48	5.46	1
Namkhana	433	67.60	48.17	0.58(19)	2.68	6.23	1

Source : Census of India 2001, Rural Household Survey 2005, HDR South 24 Parganas 2009, Health on the March 2008.

A glance at the Table-1 reveals that highest female literacy rate is observed at Namkhana the percentage being 67.60. The lowest female literacy rate i.e., 44.30 per cent is observed at Basanti. Basanti is also featured by the presence of highest percentage of families living below the poverty line. At Basanti the percentage of rural households living below the poverty line is 64.59 per cent. Basanti is thus, characterized by the presence of highest level of illiteracy among women along with highest number of rural households living below the poverty line. The human development index (HDI) of the block Basanti is 0.50, indicating the lowest level of human development among the 29 blocks of South 24 Parganas. The value of HDI for all these blocks varies between 0.50 and 0.59 indicating a low human

development. In other words the standard of living of these eight blocks is at a low order (Table-1).

The health parameters of the block is measured by the number of beds per ten thousand populations and the number of doctors per lakh population. It will be observed that compared with national norms for provisioning of health infrastructure, there exists an infrastructural gap. The presence of such gaps forced the patient to move from one hospital to another resulting an increase in the 'burden of health expenditure' (The burden of health expenditure is the ratio of average health related expenditure during the period of reference per indisposed person and the average overall consumption expenditure per house hold during the corresponding period). Among the 8 selected blocks, the number of bed per ten thousand populations is highest in Namkhana followed by Mathurapur-II, Kultali. In case of number of doctors per lakh population the situation is moderate in Mathurapur-II, Namkhana and Kultali. The situation in Gosaba, Basanti is quite different. Both in cases of hospital bed and the number of doctors in state health care services per one lakh population they are at the bottom. However from the point of view of providing health care services to the people this is of little consequence. In Gosaba a large number of families do not depend on the state sponsored health care system. Infact, the relatively favourable female literacy rate along with mortality rate is related with the activity of Christian Missionary activity in this area for several decades.

Inspite of the presence of Christian Missionary activity in Gosaba, infrastructural gap persists. The average level of deficit with respect to community health centre (CHC) is one (as per national norms there should be one CHC for every 1 - 1.20 lakh population, serving as a referral institution for 4 PHC) the prescnce of such gap distract the rural population from the lower level public health sector and enhances the burden of health expenditure. NSSO's 60th round observed that at the all India level the poorer sections carry a higher burden compared with the better off. It is also observed that the burden of expenditure for hospitalization is substantial for 90 per cent of the population. It is observed that during the survey in South 24 Parganas a poor family has to bear an expenditure amounting to Rs. I000/- for curing a Common Krait snake-bite patient, while in case of in Russell's Viper bite the expenditure rose to Rs.15,000/- for proper treatment of the patient.

A low level of HDI i.e. a higher level of illiteracy generates superstition. Illiteracy along with substantial burden of expenditure poverty reinforces the foundation of superstition. As a result of this

superstition rural people of these areas depend to a great extent on the exorcist for treatment of snake-bite victims. In some cases, the people hesitate to report about the snake-bite incidents. Consequently, a large number of snake-bite cases remain unrecorded. As mentioned in HDR – South 24 Parganas, 2009 there have been 8 reported deaths from snake-bite between Jan–June 2007, compared to 15 in 2006. However CJSS estimated deaths from snake-bite was 21 and 61 respectively for the year 2006 and 2007. In order to trace the extent of these unrecorded event i.e. snake-bite patient and snake-bite victims a survey was organized by CJSS in these eight selected blocks of South 24 Parganas.

II

The Survey

The survey was conducted in three phases. In phase-I of the survey only two blocks, Gosaba and Basanti were taken into consideration. After the completion of the survey in Gosaba and Basanti, remaining six blocks such as Kultali, Joynagar-II, Mathurapur-II, Patharpratima, Sagar and Namkhana were taken into consideration. In phase III of the survey 5 blocks such as Mathurapur I, Joynagar I, Kakdwip, Mograhat I and Mograhat II are considered. However the entire data of phase III is not yet processed. As such we restrict our analysis with respect to phase I and phase II of the survey. Started in January 2008, a total of 22 months was required to complete the phase I and phase II survey. Due to financial constraint and administrative reasons the period of survey was prolonged. It was decided that the survey will be one of household survey. The enumerators were asked to visit each household of the 'gram sansad' and collect information relating to snake-bite, if any, occurred in the family during the past two years through a structured questionnaires.

The information on snake-bite collected for the period 2006 to 2009 will now be analyzed on the following major points; a) the extent of the occurrence rate, i.e., the number of snake-bite cases per ten thousand population per year in these 8 blocks, b) determination of the mortality rate due to poisonous snake-bite i.e., number of deaths occurred per thousand snake-bite cases per year, c) age-wise variation of this death, d) seasonal variation in the death of snake-bite cases, e) type of species (snake) that effected such death and lastly f) current practice of treatment of snake-bite patients.

Table -2 described the number of deaths from snake-bite from the period 2006 and 2009 as captured in the survey. The total number

of deaths from snake-bite in these eight blocks was 184. The highest number of deaths was observed in 2007, the deaths being 61. Thereafter number of deaths decreases. In 2009, the number of deaths from snake-bite was 42. The highest number of death in any year in a block was observed at Gosaba. In 2007, 17 cases were found to be snake-bite victims at Gosaba. As against this in Sagar, the number of death was as low as 10 between 2006 and 2009.

Table 2: Number of Deaths Due to Snake-Bite between 2006-09

Block	Year 2006	Year 2007	Year 2008	Year 2009	Total
Island Block					
Gosaba	7	17	na*	na	24
Basanti	12	11	na	na	23
Kultali	na	8	15	15	38
Patharpratima	na	5	12	11	28
Sagar	na	2	4	4	10
Non-Island Block					
Joynagar-II	2	6	11	3	22
Mathurapur-II	na	9	15	4	28
Namkhana	na	3	3	5	11
Total	21	61	60	42	184

Source : Field Survey 2009 (* not available)

The number of snake-bite cases per ten thousand population per year i.e. occurrence rate and the number of deaths occurred per thousand snake-bite cases per year i.e., mortality rate in these eight blocks of South 24 Parganas are presented in Table -3. The data indicate that there had been 184 deaths out of 4871 reported cases of snake-bite between 2006 and 2009. The survey data on snake-bite shows average occurrence per ten thousand populations was 13.95. However, the average case fatality ratio i.e. mortality ratio was as high as 37.77 per cent. Interestingly, the same mortality ratio was observed by other researchers. In 1992 Dr. Amiyo Hati and others observed the same mortality ratio of snake-bite with respect to Burdwan. In some blocks the mortality rate was significantly high. The incidence of death from snake-bite per thousand at Mathurapur-II was as high as 61.18, while the lowest incidence of death was recorded at Basanti. The rate was only 23.58. The important point to be noted here is the prevalence of high mortality ratio (case fatality ratio) with a low occurrence rate. In Mathurapur–II death from snake-bite was considerably higher in comparison to other blocks. Lack of awareness,

improper quality of life might be the causes of increased morbidity.

Geographically, the area under the survey is confronted with specific health problems such as arsenic contamination, vector borne diseases (like Kala-azar, Malaria, Filaria) and diseases spread through food and water (like diarrhoea). The high incidence of snake-bite as revealed by the survey also requires proper attention. The information given in HDR – South 24 Parganas 2009 indicate that in 2006 the total number of deaths from all vector borne diseases and diseases spread through food and water was 62, while in 2007 the total number of fatality, due to snake-bite as observed during the survey in these eight blocks only was as high as 61. Clearly, the importance of snake-bite death in these region is quite evident from the above data.

Table 3 : Occurence rate and mortality rate of Snake-Bite

Block	Number of Person Bitten	No. of Death	Average Number of Person Bitten per year	Average Number Deaths per year	Estimated Population 2009	Occurence Rate in per cent	Mortality Rate in per cent
Island Block							
Gosaba	885	24	442.5	12.5	232874	18.60	28.24
Basanti	975	23	487.5	11.5	318453	15.30	23.58
Kultali	714	38	370.5	19.0	211507	17.52	51.28
Patharpratima	590	28	295.0	14.0	319635	9.23	47.40
Sagar	280	10	140.0	5.0	209516	6.68	35.71
Non-Island Block							
Joynagar-II	515	22	257.5	11.0	232660	11.06	42.72
Mathurapur-II	474	28	237.0	14.5	216310	10.96	61.18
Namkhana	411	11	205.5	5.5	193884	10.59	26.76
Total	4871	184			1744845	13.95	37.77

Source : Field Survey 2009, Census 2001

The age specific distribution of snake-bite victims will now be discussed. As we gather from Table-4, there were 29 persons whose age group is between 15 years and 19 years. Out of 184 victims, 25 victims belong to age group 10 years to 14 years. In fact, there were 88 persons whose age is below 20 years. In other words, out of 184 snake-bite victims in these eight blocks, 47.83 per cent were below 20 years of age. It should be noted here that the highest incidence of mortality rate within the age group 20 was 82.14 per cent. The survey revealed that at Patharpratima out of 28 snake-bite victims the age of 23 persons is 20 years. Most of these deaths occur due to improper treatment.

Table 4 : Age Distribution of Snake-Bite Victims

Block	Age in years												
	01-04	05-09	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60+	Total
Island Block														
Gosaba	1	-	1	2	1	4	1	4	2	2	5	-	1	24
Basanti	2	3	3	6	2	1	-	1	1	-	1	3	-	23
Kultali	3	3	5	7	2	4	2	1	4	3	1	1	2	38
Patharpratima	1	8	11	3	2	-	-	-	-	-	1	2	-	28
Sagar	-	1	-	3	2	-	-	-	1	-	-	3	-	10
Non-Island Block														
Joynagar-II	-	2	2	3	3	1	4	1	1	2	3	-	-	22
Mathurapur-II	6	2	1	3	1	2	2	2	2	1	1	2	3	28
Namkhana	-	2	2	2	-	-	-	-	2	-	3	-	-	11
Total	13	21	25	29	13	12	9	9	13	8	15	11	6	184

Source : Ibid

Table 5 : Seasonal Variation of Snake-Bite Victims

Block	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Island Block													
Gosaba	-	2	2	2	1	4	3	2	6	-	2	-	24
Basanti	-	-	1	2	1	6	4	4	5	-	-	-	23
Kultali	1	1	-	3	5	6	6	7	6	2	1	-	38
Patharpratima	-	-	-	2	1	-	1	9	9	4	2	-	28
Sagar	-	-	-	-	-	1	1	1	5	1	1	-	10
Non-Island Block													
Joynagar-II	-	-	-	-	-	2	-	15	3	1	1	-	22
Mathurapur-II	-	-	1	-	2	5	2	5	10	2	-	1	28
Namkhana	-	-	1	-	-	-	1	3	3	1	2	-	11
Total	1	3	5	9	10	24	18	46	47	11	9	1	184

Source : Ibid

One important feature of the snake-bite cases / victim in these eight blocks is that large majority of victims occurred between June and September. The data presented in the Table – 5 indicates that out of 184 victims, 73.37 persons lost their life due to poisonous snake-bite between June and September. The data collected during the survey on snake-bite victims reflects a high degree of seasonal variation on the snake-bite cases. It gradually increases between January and August, thereafter decreases. This unique pattern of death due to poisonous snake-bite is quite consistent with the life-cycle of snake.

Table 6 : Species of Snake and Deaths

Block	Monocled Cobra	Common Krait	Others	Total
Island Block				
Gosaba	8	16	-	24
Basanti	10	13	-	23
Kultali	14	24	-	38
Patharpratima	7	21	-	28
Sagar	2	8	-	10
Non-Island Block				
Joynagar-II	6	16	-	22
Mathurapur-II	10	17	1	28
Namkhana	5	6	-	11
Total	62	121	1	184

Source : Ibid

In addition to age specific variation of snake-bite victims, and seasonal variation in the death cases, the survey also tries to detect the particular species of venomous snake which endangered the human life. The four major poisonous snakes in Bengal are Spectacled Cobra, Monocled Cobra, Common Krait and Russell's Viper. Among these four species two types are generally found in the Sundarban region. Naturally, most of the people are losing their life by bites from any of these two species i.e., Monocled Cobra and Common Krait. The study however, indicates an intriguing aspect. The baseline study indicates that there had been 121 deaths due to Common Krait bite out of 184 total death. (See Table-6). Thus, the case fatality ratio due to Common Krait bite was highest. The high incidence of death due to Common Krait is possibly due to night faring nature of this species, unpredictability of bite at the early stage, bad housing of village people and gradual extinction of Banded Krait a natural predator of Common Krait.

Table 7 : Place of Death of Snake-Bite Patients

Block	Govt. Hosptial	Nursing Home	Ojha to Hospital	On the way to Hospital	At Home	Ojha	Poisonous Stone	On the way	Village Doctor	Total
Island Block										
Gosaba	2	-	3	-	3	16	-	-	-	24
Basanti	2	1	1	-	3	9	7	-	-	23
Kultali	4	-	17	-	7	10	-	-	-	38
Patharpratima	-	2	12	1	1	1	-	-	5	28
Sagar	2	-	2	1	1	1	-	-	-	10
Non-Island Block										
Joynagar-II	-	-	7	-	1	14	-	-	-	22
Mathurapur-II	7	1	12	-	4	3	-	1	-	28
Namkhana	3	-	3	1	3	3	-	-	-	11
Total	26	4	57	3	23	57	7	1	5	184

Source : Field Survey 2009

The major public health problems of the eight blocks are water-borne diseases, especially diarrhoea, frequent out-breaks of gastro-enteritis. However, the loss of life due to snake-bite by venomous snake is also a matter of grave concern. In spite of this treatment for snake-bites is generally done by Ojhas. In most of the cases, the affected persons do not rely on medical hospitals. Somebody even depends on quacks. Various types of treatment adopted by the victims relatives / party is demonstrated in Table 7.

As we got from Table -7, about 81.52 per cent of 184 total deaths were almost without any treatment. Age old superstition unpredictability of bite at the early stage bad housing, illiteracy are possibly the prime cause.

III

The Awareness Campaign

Our discussion, so far, has concentrated on the extent of snake-bite death cases in eight blocks of South 24 Parganas. We shall now turn on the steps taken by the CJSS to redress this problem. It is already stated that for the past 20 years CJSS has launched various programme such as puppet show, cycle rally, songs, poster, map, exhibition about snake-bite, lack of proper treatment of snake-bite patients in 19 blocks of Sundarban. The organization has also launched a series of programme to impart training to quacks and Ojhas how to deal with snake-bite cases. Sensitization programme with the BMOH of South 24 Parganas and East Midnapore had also been organized. In 2008, with financial assistance from National Rural Health Mission (NRHM) a 'sansad' level awareness campaign had been taken.

Table 8 : Attendance Rate at the Sansad Level Meeting

Block	No. of Family (2005)	No. of Sansad (2009)	No. of Family per Sansad	Average Presence of Meeting Rate at Gram Sansad
Island Block				
Gosaba	52006	170	305	57.37
Basanti	62464	201	310	56.45
Kultali	35424	121	292	59.93
Patharpratima	61272	187	327	53.51
Sagar	37674	116	324	54.01
Non-Island Block				
Joynagar-II	38414	122	614	55.73
Mathurapur-II	30615	115	266	65.78
Namkhana	37768	98	385	45.45
Total		1130		

Source : Field Survey 2009, Rural Household Survey 2005

It was envisaged that a crucial role in this 'sansad' level survey is to be played by a Pradhan of Gram Panchayat. As per 73rd Amendment of the Constitution, the involvement from the local people in the developmental initiatives is drawn through their participation in public hearings, and meetings. Considering this it was decided that in the evening a public meeting would be held at each gram sansad with the presence of local stake holders. As there were 1130 gram 'sansad' in these 8 blocks, an equal number of 'evening meeting' were held. It was expected that at least one member from each household would attend these meetings. Dividing the actual presence by expected presence we have estimated the average attendance of each meeting. The entire exercise is shown in Table-8.

As per Table-8 the highest attendance was observed at Mathurapur-II, and lowest attendance was at Namkhana. Admittedly, the attempt to educate the poor and illiterate people about snakes and treatment of snake-bite patient through awareness campaign is not totally achieved. It was realized that the campaign should be sustained.

In spite of this indifferent attitude of a section of rural people towards awareness campaign, the number of snake-bite patients coming to the government hospital for proper treatment is rising. The data for the period 2006 to 2009 with respect to Canning (Sadar), Gosaba (Block), and Basanti (Block) hospital clearly depicts this trend. (See Table -9). As we go through the information contained in Table-9, we observe that case-fatality ratio reduces to zero in 2009, at least for the admitted patient in different hospitals.

In epidemiological study the disease causation in a broader concept depends on the complex interaction between 'agent', 'host' and 'environment'. This interaction is commonly known as 'epidemiological triad', which is the basis for understanding disease problem. In a similar way the high incidence of snake-bite and subsequent death in South 24 Parganas should be understood on the interaction between poisonous snake (agent), superstitions man (host) and habitation on the fringe of forest (environment). As habitation on the fringe of the frorest can not be changed, reduction in the death rate of snake-bite patients requires a transformation in the mindset of poor people living in the area. There is no single stroke solution. It requires an intensive and sustained awareness campaign about the various species of snakes, variation in the snake-bite over the year, possible places of snake-bite and proper treatment of snake-bite patients.

Table 9 : Trend in Hospitalisation

Year	Sadar Canning Hospital			Block Gosaba Hospital			Block Basanti Hospital		
	Snake-bite patient	Poisonous Snake bite	Death	Snake bite patient	Poisonous Snake bite	Death	Snake-bite patient	Poisonous Snake-bite	Death
2006	292	22	3	-	-	-	-	-	-
2007	470	47	1	21	9	3	29	11	3
2008	471	52	6	110	11	0	98	61	1
2009	402	44	0	103	6	0	150	68	0

Source : Field Survey 2009

IV

The Help-Line

In epidemiological survey, research information is gathered through field investigation or field survey. The discussion of this section are however based on the data culled from the register book of 'Help-line' on snake-bite. It is already stated that from March 2010, CJSS extended free medical advice for snake-bite patients through Help-line centered at Canning. It was decided that vital information contained in the conversation over phone with respect to snake-bite would be recorded. This recorded information is processed to make it useful for drawing conclusions. Technically processing includes editing, coding, classification and tabulation of data with a view to facilitate its analyses.

Between March'2010 and November 2010 there were 543 phone calls. (Table 10) These phones can be classified into four categories: first, courtesy call, secondly, request for rescue of snakes from the room / orchard of the callers, thirdly, about availability of government compensation in case of snake-bite death and lastly, seeking advice for treatment with respect to snake-bite and other bite. It is observed that the highest number of phone calls relate to seeking advice for treatment with respect to snake-bite, the number of phone calls being

Table 10 : Nature of phone call between March 2010-November 2010

1.	Courtesy call	63
2.	Requests for rescue of snake from courtyard / orchard etc.	38
3.	About Govt. compensation	25
4.	Seeking advice for treatment with respect to bite	417
	Total	543

Source : Register Book Help-Line CJSS, 2010

417 and the lowest number of calls refers to procedure relating to the availability of government compensation. The number of calls in this respect were only 25. It is observed that most of the people have no idea about this compensation. Doctors / hospital authority, on their part, also hesitate about issuing a proper death certificate to the relatives of snake bite victims. Out or 29 reported snake bite death cases across the various districts of West Bengal only in one case the proper death certificate was issued to the victims relatives. As regards the rescue of snake either poisonous or non-poisonous, there were 38 calls (Table 10). CJSS after receiving the calls sent its members to

Table 12 : Lapse of time between bite and telephonic call for help

Assistance seeking by	Within 1 hour	After 1 hour but before 3 hours	After 3 hours but before 6 hours	After 6 hours but before 9 hours	After 9 hours but before 24 hours	After 24 hours	Total
Relatives of patient		5	1		1	1	8
Well wisher of patient	2	1	4 (4)				7(4)
Trained Ojha		6	-				6
Members of CJSS			2(1)				2(1)
From hospital by patient					2	2(1)	4(1)
From hospital by doctors	1	1			2(2)	1	5(2)
Total	3	13	7 (5)		5(2)	4(1)	32(2)

Note : Figures in the bracket indicates number of deaths.
Source : Register Book – Help Line, CJSS 2010

the callers' house and trained members collect the snake from the house. The snake rescued in this way were again released to the forest area. CJSS is thinking about developing a snake collection centre, where snakes would be collected in the aforesaid way.

Table 11 : Distribution of phone-calls between Period-I and Period-II

Seeking advice with respect to	Poisonous Bite		Non Poisonous Bite		Others		Total		Grand Total
Districts	I	II	I	II	I	II	I	II	
Burdwan	2	1	4	6			6	7	13
Birbhum		1						1	1
Bankura		3						3	3
East Midnapore	3	6	12	13	3		18	19	37
West Midnapore	8	12	10	4	2		20	16	36
Howrah	2		1				3		3
Hooghly	1	2	3	1			4	3	7
North 24 Parganas	1	5	5	5	3	2	9	12	21
South 24 Parganas	13	47	50	142	10	10	73	199	272
Nadia		1	2	1	1		3	2	5
Murshidabad	2	2	4	4	3		9	6	15
West Dinajpur		1						1	1
Jalpaiguri		1						1	1
Purulia			1		1		2		2
Total	32	82	92	176	23	12	147	270	417

Note : Period I : March 2010-June 2010
Period II : July 2010 - November 2010
Source : Register Book Help Line, CJSS 2010

Table 11 described the distribution of phone calls between March 2010 - November 2010. It is observed although most of the phone calls are from South 24 Parganas, parents and relatives of snake-bite patient of distant district such as Jalpaiguri, Purulia, West Dinajpur, Burdwan also contacted with CJSS for seeking advice with respect to snake-bite. It is observed that during March 2010-November 2010, there were 114 cases of poisonous and non-poisonous snake-bite occcurs to 268 cases. It is also observed that the phenomena of snake-bite was significantly higher in July - November (period II) than in March - June (period I). In period I the total number of poisonous snake-bite was 32, while in period II, the number shots up to 82. The highest number of poisonous snake-bite case was reported in South

24 Parganas, in period II the number of poisonous snake-bite case was 47 as against only 13 in period I. In West Midnapore, the reported poisonous snake-bite case in period-II was 12 while in period-I it was 8. The relatively large number of phone calls about snake-bite in South 24 Parganas seems to be caused by two factors : i) awareness campaign and ii) snake-bite prone area. However, it is evident from the reported calls that West Midnapore, a district with a relatively high forest coverage is also a snake-bite prone district. An awareness campaign similar to South 24 Parganas may enhance the number of phone calls from this district.

Table 12 : Blockwise distribution of phone calls March 10 - November 10 (South 24 Parganas)

Block	Poisonous bite	Non-Poisonous & others bite	Total
A. Sundarban Area			
i) Island Block			
Gosaba	2	10	12
Basanti	13	22	35
Kultali	2	8	10
Patharpratima	3	8	11
Sagar		5	5
Non-Island Block			
Joynagar-I	6	11	17
Joynagar-II	-	6	6
Mathurapur-I	3	12	15
Mathurapur- II	2	6	8
Kakdwip	1	8	9
Namkhana	1	3	4
Canning -I	9	37	46
Canning -II	5	32	37
B. Non- Sundarhan Area			
Magrahat -I	-	8	8
Magrahat -II	2	6	8
Falta	I	2	3
Bishnupur-II			
Baruipur	4	12	16
Budge Budge-II	1	3	4
Bhangar-II	-	6	6
Kulpi	-	2	2
Mandirbazar	I	-	1
Diamond Harbour-II	3	3	6
Sonarpur	1	2	3
C. Total	60	212	272

Source : Register Book Helpline, CJSS 2010

It is already stated that the highest number of phone calls is received from South 24 Parganas. It is observed that there exist a variation in phone calls between blocks under Sundarban area and Non-Sundarban area. The comparatively large number of phone calls from the blocks of Sundarban area is due to launching of awareness campaign in this area. (Table 12)

Within the Sundarban area the variation of phone calls also persists between 5 Island Blocks and 8 Non-Island Blocks. A highest number of phone calls were from Canning -I block, the probable factor being high level of literacy among the people of this block. As against this a relatively higher phone calls from Gosaba block denotes a high rate of occurrence of snake-bite.

The four major poisonous snakes in West Bengal are Common Krait, Spectacled Cobra, Monocled Cobra, and Russell's Viper. Among these four species the total reported bite by Spectacled Cobra is only 2. (Table 13)

Table 13: District-wise variation of poisonous snake-bite cases in Bengal March' 10 - Nov' 10

Districts	Common Krait	Spectacled Cobra	Monocled Cohra	Russell's Viper	Total
Burdwan	-	1	1	1	3
Birhhum				I	1
Bankura	1	-	-	2	3(1)
East Midnapore	-	-	5	7	12(2)
West Midnapore	2	-	2	14	*18(4)*
Howrah	-	-	-	1	1
Hooghly	-	-	-	2	2
North 24 Parganas	1	-	3	-	5(1)
South 24 Parganas	34	-	22	5	61 (18)
Nadia	-	-	-	1	1
Murshidabad	1	1	1	2	5(3)
West Dinajpur	-	-	-	1	1
Jalpaiguri	-	-	-	1	1
Total	39	2	34	39	114(29)

Note : Figures in the bracket refers to death cases
Source : Register Book Helpline, CJSS 2010

As against the bite by Common Krait, Monocled Cobra and Russell's Viper are 39, 34 and 39 respectively. Out of the 39 total reported Common Krait bite, 34 bite cases occur at South 24 Parganas, while out of 39 total reported Russell's Viper bite cases 14 bite cases happened in West Midnapore. In other words, among the poisonous snake, South 24 Parganas is featured by the presence of Common

Krait while Russell's Viper is common poisonous snake of West Midnapore. It should be pointed here that base line survey observed 121 deaths due to Common Krait bite out of 184 total deaths. In other words 66 per cent total deaths due to snake-bite is caused by Common Krait. As against this the help line register recorded only 50 per cent death due to Common Krait bite. The reduction in percentage of death caused by Common Krait is effected initiative taken by member of CJSS through help line.

Data on places of snake-bite is also culled from the call register. We have classified the place of bite in 8 categories. In 14 cases the classification of the place of bite could not be done due to improper information. It is observed that majority of the poisonous bite occurred in and/or around home while majority of the non-poisonous bite happened outside the home. The information contained in Table-14 revealed that 69 out of 114 poisonous bite cases occurred in and/or around the home. Moreover, total snake-bite at bed was observed in 61 cases and out of 61 cases in 37 cases it is poisonous bite. As regards non-poisonous snake-bite 46 cases were found to be happened by the side of pond.

Table 14 : Places of Snake-Bite — Poisonous & Non-poisonous

Places of Bite	Poisonous	Non-poisonous	Total
A. Home / attached to home			
1. At the courtyard	22	70	92
2. At the Straw Stack	4	14	18
3. At the Bed	37	24	61
4. At the Kitchen	6	20	26
B. Outside the home			
1. At the Pond	2	44	46
2. At the attached orchard	2	8	10
3. At the Road	8	53	61
4. At the Paddy field	19	12	31
C. Not mentioned	14	23	37
Total	14	268	382

Source : Register Book – Help Line, CJSS 2010

Mortality Statistics in respect of snake-bite is given in Appendix 1. As per Help-Line call register, between March '10 - November '10 a total number of 29 persons is reported to be died of poisonous snake-bite. The age wise distribution of this 29 victims is given in Table 15. It is observed that there were 10 persons whose age is

below 20 years. In other words out of 29 victims, 33 per cent were below 20 years of age. It should be mentioned that in the survey of eight blocks, out of 184 snake-bite victims, 47.83 per cent were below 20 years of age. The relatively low percentage figure is due to effective monitoring of the patients through help line.

Table 15 : Age distribution of reported snake-bite victims : March '10 - November '10

Age in Years 01 - 09 10-19	Number of Victims
01-09	4
10-19	6
20 -29	7
30 - 39	2
40 - 49	4
50 - 59	1
60 +	5
Total	29

Source: Register Book – Help Line, CJSS 2010

The association between place of bite and snake type with respect to 29 victims is presented in Table 16. It is observed that majority of the bite by Common Krait was occured at the bed. Out of 16 cases of bite at the bed in 13 cases the agent is Common Krait. In case of Monocled Cobra and Russell's Viper particular association with any place is not observed. During the awareness campaign in the remaining blocks of South 24 Parganas this phenomenon of snake-bite should be communicated to the people. Apart from this stress should be given on the use of mosquito net to get rid off Common Krait bite. In this respect local self govemment may think of providing mosquito net to the poor people at a subsidies rate.

Table 16: Snake type and place of bite of 29 victims March 2010 to November 2010

Place of bite	Common Krait	Monocled Cobra	Russell's Viper	Not mentioned	Total
Courtyard	-	1	2	-	3
Wood /Straw Stack	-	1	1	-	2
Bed	13	2	-	1	16
Kitchen / Room	-	1	-	-	1
Road	-	-	1	-	1
Paddy field	-	3	1	-	4
Play ground	-	-		2	2
Total	13	8	5	3	**29**

We shall discuss the extent of laps of time (in hours) between bite and called for help. It is observed that from Table 17 between March 10 to November10 there were 114 phone calls with respect to poisonous bite. Out of these 114 phone calls 50 were from hospital. In other words 44% of the total phone calls with respect to poisonous bite were from hospital. This indicate an important development. As per report of the NSS 60th round the trend of hospitalization for treatment among the rural people of India is about 22 per cent. Compared to these all India figure a reatively high rate of hospitalisation is perhaps due to awareness campaign launched by CJSS in this district. Another point also is to be mentioned. There are 17 phone calls from doctors attending snake-bite patients at various hospitals. This development indicates the presence of cordial relations between doctors at various hospitals and CJSS.

One last point to be mentioned is that there have been 29 reported deaths out of 14 poisonous bite from March – November 2010. In 14 reported death cases, the well wishers of the victim informed the incident of serious snake-bite to CJSS after 3 hours of the bite. CJSS through telephone tried its best but it was of no avail. Be that as it may, in 85 poisonous snake-bite cases, i.e., in 75 per cent case CJSS had correctly handled the patient.

Table 17 : Lapse of time (in hours) between bite by poisonous snake and telephonic call for help

Assistance seeking by	<1	1-3	3-6	6-9	9-15	15-24	>24	Total
Relatives of patient	9	9(I)	1	-	2	-	2	23(1)
Well wisher of patient	3	4(2)	7(6)	7(6)	2(1)	2(1)	-	25(16)
Trained Ojha	2	6	1(1)	-	-	-	-	9(1)
Members ofCJSS	2	2	2(1)	1	-	-	-	7(1)
From block hospital by patient party	2(1)	1	5	2(2)	4	1	2(1)	17(4)
From block hospital by doctors	2	2	2	1(1)	4(2)	1	1	13(3)
From PG/NRS by patient party	-	-	4	2	3(1)	-	7(2)	16(3)
From PG / NRS by doctors	-	1	1	1	1	-	-	4
Total	20(1)	25(3)	23(8)	14(9)	16(4)	4(1)	12(3)	114(29)

Note : Figures in the bracket indicate number of dealhs.
Source: Register Book — Help line. CJSS 2010

The idea of Help-Line services to the snake bite patients is a new one in West Bengal. Through this help Line the advice relating to the management of snake-bite patients can be rendered without any cost.

We observed that for successful implementation of the help line programme with respect to snake-bite patients three things should he taken in consideration: first, a group of expert about snake-bite, secondly, a moderate infrastructure in rural PHCs and hospitals, lastly, financial assistance to the snake-bite patients for meeting the cost of hospitalization of the poor snake-bite patients. For a substantial reduction in snake-bite mortality in West Bengal particularly in South 24 Parganas and West Midnapore these factors should be addressed properly.

Conclusion

Man is mortal. In spite of this, the basic objective of medical science is to delay this inevitability. Medical science tries to attain this objective by adopting disease specific preventive and curative measures. The preventive measures necessitates social awarencss which in turn generates demand for medical services. In a backward economy, a systematic social awareness campaign about 'agent' and 'environment' of the disease slowly transform the mindset of the people towards realization of the primary cause of the diseases. This transformation in the mindset of the poor people for proper treatment of the patient is very important and it generates demand for medical services.

The curative measures on the other hand, stresses on the development of infrastructure both physical and personnel. In other words, proper supply of medical personnel, medicine and instrument in the health-care units is the prime task of curative measures. Hence equilibrium in health service's market requires a balance between demand for health services and supply of health services. A distortion on any pars may jeopardize the balance.

With financial assistance from NRHM, CJSS attempts to generate a demand for proper and immediate health-care services of the snake-bite patients at the block level and sub-divisional level hospitals. However, it is observed that in many cases the patients are referred to hospital located at Calcutta. It is our observation that lower level health-care service points is to be revamped so that balance between demand for and supply of health care service is maintained.

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Appendix I : Snake-bite – Mortality Statistics in West Bengal : March 10 - November 10

Name	Age (in yrs.)	Address Contact number of the relative/ party etc.	Date of Occurance	Place of occurance	Snake Type	Whether registered or not?
A. Bankura						
1.Muktinath Sarbabhouna	72	9851066265	14.09.10	Bed	Common Krait	
B. East Midnapore						
i. Mousumi Mirdha	6	Dantan 9153815322	24.02.10	Courtyard	Russell's Viper	
ii. Naju Bibi	30	Nandigram 9735793894	24.06.10	Collection of firewood from stack at home	Monocled Cobra	
C. West Midnapore						
i. Prasanta Bhattacharya	22	Kharagpur 9732647026	20.03.10	Play ground	Not mentioned	
ii. Aswini Maity	60	Sabang	14.06.10	Bed	Common Krait	
iii. Bikash Hui	22	Nayagraw 9932094339	12.09.10	Road	Russell's Viper	
iv. Nemai Mondal	48	Debra	16.10.10	Paddy field	Russell's Viper	
I. Minati Mondal	24	Hingalganj 97336R229	01.10.10	Collection of firewood from stack at hume	Russell's Viper	
E. South 24 Parganas						
i. Namita Arhi	20	Gosaba,	20.03.10	Bed at the floor	Monocled Cobra	
II. Rabin Bakshi	18	Namkhana 9647372340	12.06.10	Bed	Common Krait	

Name	Age (in yrs.)	Address Contact number of the relative/ party etc.	Date of Occur-rence	Place of occurrence	Snake Type	Whether registered or not?
iii.Anil Manna	7	Patharpratima 9734205196	04.07.10	Bed	Common Krait	
iv. Soumen Jana	9	Patharpratima 9775213927	13.07.10	Veranda	Monocled Cobra	
v. Mohan Sardar	40	Baruipur 9635395184	31.07.10	Bed	Common Krait	
vi.Rina Das	19	Roydighi 9033961764	02.08.10	Bed	Common Krait	
vii Fatema Khatun	9	Canning-II 973564484	07.08.10	Bed	Common Krait	
viii. Krishna Bhmlgi	62	Budge Budge-II 9J43434685	26.08.10	Catching of fish in the field	Monocled Cobra	
ix. Sanchita Mondal	24	Kakdwip 9133209529	19.09.10	At the time of feeding her child at bed	Common Krait	
x. Suchitra Haldar	40	Joynagar-I 07797006715	23.09.10	Bed	Common Krait	
xi. Chittranjan Haldar	45	Canning-I 9732561428	28.09.J 0	Paddy field	Monocled Cobra	YES, at Canning Hospilal
xii. Sanyashi Mondal	70	Patharpratima 9564030708	02.10.10	Room	Monocled Cobra	
xiii. Majra Khatun	13	Mathurapur-1	03.10.1O	Bed	Monocled Cobra	

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Name	Age (in yrs.)	Address Contact number of the relative/ party etc.	Date of Occur-rence	Place of occurrence	Snake Type	Whether registered or not?
		9J53340884				
xiv. Chaturanan Kayal	77	Mathurapur-1 9433648039	06.10.10	Bed	Common Krait	
xv. Raj Kumar Hazra	20	Joynagar-II 9732875818	27.10.10	Bed	Common Krait	
xvi. Asmuda Khatun	53	Mograhat -II 9732202120	30.10.10	Bed	Common Krait	
xvii. Mongola Mondal	32	Mograhat -II	14.11.10	Courtyard	Russell's Viper	
xviii. Samsul Lashkar	20	Basanti	30.11.10	Paddy field	Monocled Cobra	
F. Murshidabad						
i. Debi Halder	14	Beldanga	09.05.10	Bed Room	Not mentioned	
ii. Nijamul Haque	15	Salar	20.05.10	Playground	Not mentioned	
iii Jayanta Acharya	16	Khargram 9832808746	15.08.10	Bed	Common Krait	

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Appendix II : Name of Surveyors

Mahiuddin Mondal	Village : Homra, Canning-II
Ananta Mondal	Village : Bipradaspur, Gosaba
Krishnapada Sardar	Village : Charabidya, Basanti
Niranjan Sardar	Canning town
Tushar Dhali	Canning
Bablu Sahoo	Canning
Abhijit Banerjee	Khidirpore, Kolkata
Sirajuddin Haldar	Ghutiary Sarif
Shankar Ghosh	Canning
Gopal Barman	Pakhiralay, Gosaba
Dipak Mondal	Ranigarh, Basanti
Bimal Ghosh	Canning
Dwijapada Hajari	Ranigarh, Hajari
Dipak Mondal	Bipradaspur, Gosaba
Goutam Banerjee	Shambhunagar, Gosaba
Prabhash Mondal	Sandeshkhali, N-24 Parganas
Susanta Bahadur	Gosaba
Bichitra Bera	Gosaba
Dulal Chandra Sanphui	Canning
Mahiuddin Dhali	Ghutiary Sarif, Canning-II
Nabakumar Mondal	Canning
Sanjib Barman	Bipradaspur, Gosaba
Bimal Patra	Canning
Soumen Naskar	Canning
Haran Pramanik	Jhnaja, North 24 Parganas
Sajal Mallick	Sonarpur
Shubhankar Mondal	Bipradaspur, Gosaba
Chandi Mondal	Bipradaspur, Gosaba
Ajibar Mollah	South Homra, Canning
Shyamal Chatterjee	Sonarpur
Sukumar Mondal	Palta, Canning-II
Madhab Mondal	Canning
Swapan Chatterjee	Shambhunagar, Gosaba
Biswajit Naskar	Canning
Satyajit Patra	Bali-I, Gosaba
Ashoke Biswas	Canning
Dipendu Barman	Bipradaspur, Gosaba
Birkumar Mondal	Taldi, Canning-I
Asim Naiya	Canning
Jahanara Khan	Canning
Kabil Jamadar	Homra, Canning-II
Biswanath Tarafdar	Habra, North 24 Parganas

Jaydeb Mondal	Gadakhali, Basanti
Kabir Islam Gaji	Canning
Binoy Bhakta	Canning
Samsul Jaman	Canning
Ajijul Sardar	Canning
Idrish Laskar	Ghutiary Sarif
Fakir Ali Mollah	Ghutiary Sarif
Prabir Ghosh	Canning
Sudip Mondal	Gosaba
Mrityunjoy Das	Gosaba
Sachin Mondal	Gosaba
Shyamal Sikari	Moukhali
Sudhangsu Jagulia	Basanti
Goutam Tripathi	Basanti
Rampada Hajari	Basanti

Awareness of Snake-Bite among School Teachers

Dr. Sutapa Thakur

Government College of Education, Banipore is a premier institute of teacher's training colleges of West Bengal. It is situated near Habra in the North 24-Parganas district. Every year nearly hundred students all over West Bengal enroll their name in this institute. Among them approximately 50% are deputed candidates and rest are freshers. Considering teachers and would be teachers as respected, responsible resourceful persons in our community we have conducted a sample survey among them (2010-2011session) regarding awareness of snake and snake-bites. They were provided a questionnaire with the following questions.

1. Your place of residence.
2. Incidence of snake-bite cases per year in your locality.
3. How many snake-bite deaths occured in the last five years.
4. Have you seen any snake-bite case? What is your experience?
5. Write the name of some poisonous snake.
6. Write the name of some non-poisonous snake.
7. How you ascertain that it is a bite of poisonous snake?
8. One of your students is bitten by snake what should you do?
9. What is the antidote of snake venom?
10. Why death occurs due to poisonous snake-bite?

Discussion

Half of the candidates have not responded to our questionnaire. As a whole their response is non-satisfactory. We think they were not at all serious to give any answer. We doubt whether they can realise that it is a problem at all. However we can now discuss briefly with their responses according to the order of questions.

1. It is observed that majority of them reside at urban and suburban areas. As snake-bite is principally a rural problem so they candidly admit that they have not any knowledge regarding snake and snake-bite. Even the teachers who reside at villages have not the requisite knowledge.

2. Almost 50% do not know about any incidence of snake-bite. Remaining candidates answer either vaguely or without knowing the exact situation.

3. The same condition as like answer 2.

4. Almost none of them face any snake-bite incidence. So whatever they have answered that is out of imagination.

5. & 6. Majority of them have given correct answer as it is to some extent a theoretical knowledge. Though somebody have used local names.

7. Almost all of them given correct answer as it is also a theoretical knowledge.

8. Nobody suggested regarding immobilisation of the bitten part. Everybody are in favour of good knot above the bite-mark. Somebody suggested of some quasi-scientific first-aid. But nobody encourage for any indigenous method or treatment by Ojha, Gunin etc.. Everybody suggested that the victim should be shifted to nearest hospital. Somebody also ridiculed common man's ignorance and backwardness regarding treating the victim with indegenous methods.

9. 50% have given the correct answer, 20% have mispelled the name of the antidote and remaining candidates either do not know or given wrong answer.

10. 60% have given correct answer, 20% given wrong answer and remaining candidates do not know the exact cause of death.

Conclusion

We expect much more seriousness and consciousness regarding snake and snake-bite from our teacher community because snakes are important ecological part in our environment . On the other hand teaching community is the most important, sensitive intellectual brigade available in our poor backward rural area. Every year throughout West Bengal at least 2500 innocent people are victims of poisonous snake-bite. Though snake-bite is primarily a rural problem and our school teachers are from urban and suburban areas so there is an inherent dichotomy as to how we can meet up our demand of this scientific awareness. We have our experiences that a conscious school teacher posted at a remote village school can save the life of an innocent victim. In this way he can perform an yeoman's service. Our society now is much more individualised and self-centred. Our young generation are now much more interested about their career and achievement. But let we do not forget that we are essentially social animal and chained with every aspect of social turmoil. So if snake-bite is a social problem then we must be conscious about it.That is the significance of this sample survey.

Why we should not kill snakes

Shyamal Mitra

Today voices are raised in issues like saving snakes. Mainly the people who are campaigning for the environment (Science Association) and apart from them we have radio, TV, etc. Even books are there which might go against the Juktibadi Sanskritik Sanstha. This is because in West Bengal, they took out a cycle rally under the banner "Save snakes, Save People". So, it is an obvious question that comes to our mind that if thousand of people are bitten by snakes and many are dying, then why do we need to save them.

We live in one world. The animal that creates more destruction to mankind are the rats. They destroy food-grains, vegetables, and many more. These rates sat inside the small holes and as such taking them out and killing them is not easy. So, in such cases, snakes are our best friends. This is because snakes can enter the small rat holes and kill them.

Secondly, poisons of the snakes are used to manufacture Cancer drugs. Some scientists have already started saying that if within 5 years, 2/3 portion of the snakes die then the human death rate will increase.

Workers of the Juktibadi Sanskritik Sanstha put forward an interesting view. They claimed that if there are snakes around you, then you are much more safe. How? Snakes eat lizards, cockroaches, insects etc. and make our environment safe. Moreover, snakes' favourite food is snake itself. The nocturnal snakes come out in the evening when they are hungry and as such whatever they get, they eat. On the other hand, the snakes that come out in the morning prefer shady places because they cannot stand heat. This is because they do not have sweat glands. So these snakes roam around the places where it is cool and thus it increases their hunger. They neither see properly nor hear. They act on the sensing of touch and thus make self-defence. To hunt, they utilize their long tongue. When they stick out their tongue, they immediately guage the situation near him. If the tongue of a snake is cut off, then the snake will definitely die within few days.

Poisonous snakes have poisonous teeth at the front. This helps them to catch their prey. Otherwise, it will be impossible for them to catch the prey. After holding it with the teeth, it infuses the venom into the preys body. When it dies, then it starts swallowing it. On the

other hand, non-poisonous snakes have strong teeth to hold its prey. While holding it they try to swallow it. One interesting aspect is that poisonous snake take in their own poison. So, aren't there be any effect ?

No, it does not have effect. This is because the body of the poisonous snakes contain a type of enzyme. It helps in digesting the food.

If in fear or as a prey, the snake bites, then there will be obvious bite marks on the victims body. On the other hand, non-poisonous snakes have many small teeth. Very often we can see, a snake eating another snake. For example, a rat snake (non-poisonous) swallowing a small cobra (poisonous). On the other hand, King Cobra (poisonous) swallowing the big rat snake (non-poisonous). This way the balance is being maintained.

Science states that during the ice-age, when most of the creatures started dying, then reptiles like Chameleon saved themselves by hiding behind the cracks of the rocks. For that, it is said that because they hid themselves behind the cracks of the rocks, the body of chameleon under went certain changes. They lost their body and became thin shedding fat, etc. They lay eggs and when there eggs hatch, the small babies start eating each other. In this way, they survive. However, due to man's increasing habitat, they are facing scarcity of food. Mankind has created a problem of food for snakes, as well. People are using pesticides and insecticides to kill insects and pests. Now, the creatures which feed on them also taking in these pesticides and insecticides along with it, and thus creating problem for them. That is the reason why, snakes are now taking shelter in the houses of human beings. So now-a-days, Common Krait which was not visible at all are now often visible and stands as the main reasons for human deaths.

It's a very dangerous snake – Common Krait. Usually after the bite, the victim does not feel the pain. Imagine a small and sweet little boy gets bitten by a Common Krait. He does not feel it. No one knows what happens. Later when he get up from his sleep (deep sleep), he starts complaining about stomach ache, body-sprain, etc. How would it be possible to detect the cause and start the treatment?

Canning Juktibadi Sanskritik Sanstha came out with an analysis (11th West Bengal Science and Technology Congress – 28-29 February, 2004) that Banded Krait's favourite food is Common Krait. Now since the numbers of Banded Kraits are diminishing, the numbers of Common Krait are on the rise. That is the reason why, 95% of snake-bite cases are because of Common Krait.

Let us think in a different way. How about if we rear non-poisonous snakes here. We have heard that snake-meat are quite tasty and so we can earn foreign currency to our country. At the same time, with the help of the skin, we can make some attractive articles. Moreover, if we let loose the snakes in the fields, then it will help us in keep the balance of the snakes. They can even control the pests and the insects by eating them. As such Common Krait will not roam around here and there in human locality in search of food. Thus we can save ourselves from the bites of such poisonous snakes.

So, let us not impose our immaturity on the snakes. Let us come forward and think how we can maintain the balance in nature, so that cases of snake-bites diminishes.

Post mortem and Snake-bite

Dr. Rathindra Nath Haldar

Post moterm means the examination of a human body after death to detect the cause of death and nature of the death i.e., whether it is natural or unnatural. Natural death means cause of death is a disease process. If it is unnatural it may be one of three types (i) Homicidal, caused by some other person or persons. (ii) Suicidal - self inflicted, (iii) Accidental.

When a person dies in the hospital and the nature of death is unnatural or a person brought dead in the hospital the concerned doctor should inform the nearest police station in a written form that information is known as Death Intimation. If a person die in his house or any other place such as on the road, river side or in the forest and if that death is unnatural and police get this information by any means either through their own channel or informed by some other person.

After receiving the death intimation from hospital doctor or informed by any means as mentioned above an officer usually the rank of a Sub-Inspector of police proceeds to the place where the body of the deceased person is lying and there in the presence of two or more respectable inhabitants of the neighbourhood makes an investigation and draws up a report of the apparent cause of death as judged from the appearance and surroundings of the body, describing wounds, fractures, bruises and other marks of injuries as may be found on the body. The report is then signed by the investigating police officer and by the persons present at the inquest. This report is known as Inquest report or Surthahal.

The police officer then forwards the dead body with the inquest report and other documents for postmortem examination to the Medical Officer of the district or Subdivisional hospital authorized to hold such examination. Recently the designation of Medical officer performing post mortem examination changed and now known as Autopsy Surgeon.

Autopsy Surgeon thoroughly read the inquest report and if the patient died in the hospital we used to brought the bed head ticket from the ward and read the history and signs and symptoms recorded by the concerned doctor who treated the patient, after that we start post mortem examination.

Here I am mentioning only the salient features of snake-bite patient.

Inspection :

First of all we search for any bite mark over the whole body (Torso, extremities, face) with a hand lens.

In case of poisonous snakes we found two bite marks usually 4 mm. apart, they are two puncture wounds with lacerated margin about 1.25 cm. deep in case of Vipers. Sometimes we found only one bite mark, other bite mark may be over the garment. There is swelling and cellulitis of the bitten part, underneath the swelling and bite marks on dissection we found muscular haematoma. Haemorrhage from the punctures as well as from the mucous membranes of the body orifices this is manifested as bleeding from the rectum, mouth and through the nostrils.

Dissection

The blood is extremely fluid and purple in colour as snake venom has a haemolytic action on the blood and reduces the power of its coagulability with the result that a bloody serum continous to ooze out from the wound for many hours. This oozing is more pronounced in Viperide poisoning than in Elapidae poisoning.

In oral cavity & throat collection of massive saliva and viscid mucus found particularly in Elapidae poisoning such as cobra, krait. In lungs, intense congestion found. In some cases haemorrhage from the lungs due to damage to capillary endothelium.

In kidney, petechial haemorrhages were found and haemorrhagic interstitial nephritis (microscopic feature). All Vipers cause necrosis i.e., death of muscle tissue, this necrosis spreads throughout the whole body, a condition known as Rhabdomyolysis. This dead muscle cells may even clog the kidney which filters the protein, this coupled

with hypotension can lead to acute renal failure and if left untreated eventually death ensures.

Brain - In some cases of Viper bite there may be haemorrhage.

Intestine & stomach — Haemarrhage is found. Sometimes Autopsy Surgeon send some intestinal organs e.g. lungs, brain, half of each kidney, a portion of liver, stomach and its contents for histopathological examination and in case of suspected poisoning to detect the poison and the nature of the poison. This organs collectively known as viscera and the report which come after histopathological and/or chemical examination of that viscera is known as viscera report.

Venoms in many snakes such as pit Vipers & Elapidae affects virtually every organ system in the human body and can be a combination of many toxins including cytotoxins, haemotoxin (haematotoxin) neurotoxins and myotoxins and produces an enormous variety of symptoms. Earlier the venom of a particular snake was considered to be one kind only i.e., either neurotoxic or haematoxic and this erroneous belief may still persist in somewhere. So considering all the points together we can conclude that in Elapidae neurotoxin predominate but other toxins also present and in Viperidae haematoxoxin predominate but other toxins also present.

In case of predominant neurotoxic bite patient dies from respiratory failure. The first antivenom was discovered in 1895 by French physician Albert Calmette for the treatment of Indian cobra bites.

Snake-bite were also used as a form of suicide most notabley by Egyptian queen Cleopatra VII who reportedly died from the bite of an Egyptian Cobra to her left breast after hearing of Mark Antony's death news.

Snake-bite as a surreptitious form of murder had been featured in stories such as Sir Arthur Conan Doyel's "The Adventure of the speckled band."

In some cases there is a delay to receive the postmortem report, so Govt. of West Bengal issued an order which mentioned that if a Government hospital doctor issued a certificate mentioning the cause of death is snake-bite there will be no need for post mortem examination.

Treatment and Management

FEW WORDS REGARDING SNAKES

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In the history of mankind, humans have regarded snakes with both fascination and horror. In many cultures, snakes have been symbols of evil, from the Biblical serpent in the Garden of Eden to the snake demons of Indian mythology. To the ancient Egyptians the emblem of judgment and death was a snake.

Snakes are found in most habitats worldwide except in extreme northern and southern regions. Snakes come in multitudes of sizes and colors with as many varied lifestyles, from deadly King Cobras whose bite can kill a human in 15 minutes, to the world's tiniest West Indies thread snakes, about the size of a pencil lead.

Snakes are reptiles, the group of animals that also includes crocodiles, lizards, and turtles. The now-legless snakes evolved millions of years ago from prehistoric lizards that lived at the same time as the dinosaurs. Pythons are the most ancient type of snake; they have remnant spurs, tiny projections where their ancestors might once have had legs.

Indian subcontinent boasts of housing approximately 10% of the total snake species found in the world, adding up to around 200 species in number. From warm seas to semi-deserts, swamps, lakes and even the Himalayan glaciers, one can find snakes in almost all the habitats in India. The West Bengal is the 3rd largest state after Uttar Pradesh and Tamilnadu.

But the highest no of deaths due to snake-bite occurs in our state. The four most popular species of Indian snakes are cobra, king cobra, python, Russell's Viper. Apart from the above mentioned species the following types of snakes are also commonly found in India are-saw scaled viper, purple pit viper, krait, flower snake, common rat snake. Russell viper is responsible for the most of the snake-bite deaths within its habitat.

Species Description and Natural History

The Indian python is a highly arboreal snake, once fairly common throughout the jungles of India, Sri Lanka, and the East Indies. It can grow to a length of about 20 feet (6 m).

Like the boas and anacondas of the Americas, the python is a constrictor, a snake that kills its prey by squeezing. Mammals are preferred prey, but pythons will also eat birds, other animals, even fish (pythons often live near water and are good swimmers).

Pythons drape across tree branches, camouflaged by their light and dark patterned skin, waiting to ambush their next meal. They grab their prey with a quick lashing out of the head, then wrap themselves around the prey so it cannot breathe. A large python could squeeze the life out of a deer, and amazingly enough, the python could then swallow it whole.

Overexploitation

For centuries, humans have killed pythons out of fear. Snakes of all kinds are also hunted for food, skins, and blood believed to have medicinal values. Live snakes are killed to order in Thai markets so customers can drink the fresh blood, thought to impart vitality. Python and other snake skins are made into fashionable accessories such as purses, shoes, and belts.

Snakes often are skinned alive so as not to mar the skin and reduce their commercial value. Even before snakeskin boots were fashionable, pythons were considered a trophy species and hunted heavily by Europeans. More recently, they have become sought after for the pet trade and for zoos.

Habitat Loss

In addition, the python's jungle habitat is disappearing as trees are cut down for timber, firewood and to make room for spreading human settlement and agriculture (see Spotlight on *tropical rain forests*).

Captive breeding programs are being promoted to supply snakes for the pet and zoo trade, reducing poaching pressure. Zoos no longer accept wild-caught pythons.

The King Cobra, at 18.5 feet, is the world's longest venomous snake. The lifespan of the King Cobra on an average is 20 years. A full-grown King Cobra can weigh up to 20 pounds. The King Cobra is either olive, yellowish olive or pale yellow. In India there are varieties that are yellow and black. And in China there are those that are blackish brown with white and ivory. The King Cobra is identified by its distinctive hood, which is visible when it flattens its neck, giving it a hood like appearance. The King Cobra's venom is capable of killing a human being with a single bite; the reason is because the venom is neurotoxic. The King Cobra is primarily found in Southeast Asia, Northern India and Southeastern China. Is also found in the Malay Peninsula, West of Indonesia and in the Philippines.

Indian Russell's Viper is known by a number of other names, like Daboia, Tic Polonga, etc. A highly poisonous snake of the Viperidae family, it is scientifically known as Vipera russelli. Russell's viper is responsible for most of the snake-bite deaths within its habitat. It is light brown in color and is covered with three rows of dark brown or black splotches, bordered with white or yellow.

Physical Characteristics

Russell's Viper grows to a length of 1 to 1.5 m. Its head is long and triangular, with large, prominent nostrils on each side of the snout. The fangs of the snake are large, while its tail is quite small. The length of the snout-vent is 1025 to 1080 mm, while that of the tail is 212 to 225 mm. The color of the Russells Viper of India may be dark brown, brownish-yellow or brownish-gray, with black or brown oval spots edged with black/white. The young Vipers are clear orange to brownish-orange in color. There are rows of oval spots along both the sides of the body and the tail is striped.

Characteristics
Russell's Viper is responsible for the more deaths due to snake-bite than any other venomous snake. It is highly irritable and when threatened, coils tightly, hisses, and strikes with a lightning speed. Its haemotoxic venom is a very potent coagulant, which damages tissue as well as blood cells.

Natural Habitat
The habitat of the Russell's Viper stretches from Indian farmlands to dense rain forests. It is usually found near human settlements.

Geographical Range
Russell's Viper can be found in India, Sri Lanka, China, Taiwan, Borneo, Malaysian Peninsula, Java and Sumatra.

The injury caused by a bite from a snake, often resulting in puncture wounds inflicted by the animal's fangs and sometimes resulting in envenomation. Although the majority of snake species are non-venomous and typically kill their prey with constriction rather than venom, venomous snakes are not rare in India. Snakes often bite their prey as a method of hunting, but also for defensive purposes against predators. Since the physical appearance of snakes may differ, there is often no practical way to identify a species and professional medical attention should be sought.

The outcome of snake bites depends on numerous factors, including the species of snake, the area of the body bitten, the amount of venom injected, and the health conditions of the victim. Feelings of terror and panic are common after snake-bite and can produce a characteristic set of symptoms mediated by the autonomic nervous system, such as a racing heart and nausea. Bites from non-venomous snakes can also cause injury, often due to lacerations caused by the snake's teeth, or from a resulting infection. A bite may also trigger an anaphylactic reaction, which is potentially fatal. First aid recommendations for bites depend on the snakes inhabiting the region, as effective treatments for bites inflicted by some species can be ineffective for others.

Signs and symptoms: There is vast variation in symptoms between bites from different types of snakes. However, The most common symptoms of all snake-bites are overwhelming fear, panic, and emotional instability, which may cause symptoms such as nausea and vomiting, diarrhoea, vertigo, fainting, tachycardia, and cold, clammy skin. Television, literature, and folklore are in part responsible for the hype surrounding snake-bites, and a victim may

have unwarranted thoughts of imminent death.

Dry snake-bites, and those inflicted by a non-venomous species, can still cause severe injury to the victim. There are several reasons for this: a snake-bite which is not treated properly may become infected (as is often reported by the victims of Viper bites whose fangs are capable of inflicting deep puncture wounds), the bite may cause anaphylaxis in certain people, and the snake's saliva and fangs may harbour many dangerous microbial contaminants, including Clostridium tetani. If neglected, an infection may spread and potentially kill the victim.

Most snake-bite, whether by a venomous snake or not, will have some type of local effect. There is minor pain and redness in over 90% of cases, although this varies depending on the site. Bites by Vipers and some Cobras may be extremely painful, with the local tissue sometimes becoming tender and severely swollen within minutes. This area may also bleed and blister. Other common initial symptoms of pit viper bites include lethargy, weakness, nausea, and vomiting. Symptoms may become more life-threatening over time, developing into hypotension, tachypnea, severe tachycardia, altered sensorium, and respiratory failure.

Interestingly, bites caused by the Mojave rattlesnake, coral snake, and the speckled rattlesnake reportedly cause little or no pain despite being serious injuries. Victims may also describe a "rubbery," "minty," or "metallic" taste if bitten by certain species of rattlesnake. Spitting cobras and rinkhalses can spit venom in their victims' eyes. This results in immediate pain, ophthalmo-paresis, and sometimes blindness.

Venom emitted from elapids, including cobras, kraits, mambas, sea snakes, contain toxins which attack the nervous system, causing neurotoxicity. The victim may present with strange disturbances to their vision, including blurriness. Paresthesia throughout the body, as well as difficulty speaking and breathing, may be reported. Nervous system problems will cause a huge array of symptoms, and those provided here are not exhaustive. If the victim is not treated immediately they may die from respiratory failure.

Venom emitted from some elapids, almost all vipers, and all sea snakes causes necrosis of muscle tissue. Muscle tissue will begin to die throughout the body, a condition known as rhabdomyolysis. Dead muscle cells may even clog the kidney which filters out proteins. This, coupled with hypotension, can lead to acute renal failure, and, if left untreated, eventually death occur.

Some elapids and most viper envenomations will cause coagulopathy, sometimes so severe that a person may bleed

spontaneously from the mouth, nose, and even old, seemingly-healed wounds. Internal organs may bleed, including the brain and intestines and will cause ecchymosis (bruising) of the victim's skin.

Pathophysiology: Since envenomation is completely voluntary, all venomous snakes are capable of biting without injecting venom into their victim. Snakes may deliver such a "dry bite" rather than waste their venom on a creature too large for them to eat. However, the percentage of dry bites varies between species: 50% of bites from the normally timid coral snake do not result in envenomation, whereas only 25% of pitviper bites are dry. Furthermore, some snake genera, such as rattlesnakes, significantly increase the amount of venom injected in defensive bites compared to predatory strikes.

Some dry bites may also be the result of imprecise timing on the snake's part, as venom may be prematurely released before the fangs have penetrated the victim's flesh. Even without venom, some snakes, particularly large constrictors such as those belonging to the Boidae and Pythonidae families, can deliver damaging bites; large specimens often cause severe lacerations as the victim or the snake itself pull away, causing the flesh to be torn by the needle-sharp recurved teeth embedded in the victim. While not as life-threatening as a bite from a venomous species, the bite can be at least temporarily debilitating and could lead to dangerous infections if improperly dealt with.

While most snakes must open their mouths before biting, African and Middle Eastern snakes belonging to the family Atractaspididae are able to fold their fangs to the side of their head without opening their mouth and jab at victims.

First aid treatment

1 Reassure the victim

Calm the victim down. Un-necessary panic will only raise the pulse rate and blood pressure and moves the venom into the system faster. Tell the victim that 70% of snake-bites are from non-poisonous species. Of the remaining 30%, only half will actually involve injecting venom.

2 Immobilise the bitten limb without compression

If the bite is on a hand or arm place it in a sling bandage or use a piece of cloth to support the arm. In the case of a leg bite, use a splint to support both legs and bandage them together. Do not tie the bandages tightly, we are only trying to immobilise not apply any pressure.

3 Get the patient to Hospital as fast as safely possible

Don't waste time washing the wound, seeking traditional remedies or applying any drugs or chemicals to the victim. Science has shown that traditional remedies do not work and simply waste valuable time. Snake-stones do not absorb venom and many herbal remedies make the situation worse. Keep the patient as immobile as possible.

4 Tell the Doctor any of the following signs appearing on the way to the hospital

The Doctor will want to know if any of the following signs or symptoms are noticeable on the journey to the hospital:

- Difficulty breathing. If the patient stops breathing, give artificial respiration. In Cobra and Krait bites this will save the victim's life.
- Drooping eyelids.
- Bleeding from the gums or any unusual bruising appearing.
- Increases in any swelling. Carry a pen and mark the limit of the swelling every 10 minutes or so.
- Drowsiness.
- Difficulty speaking.
- Bleeding from the wound that does not seem to stop.

Common Mistakes

There will be many who wonder where the tourniquet or compression bandage has gone, surely we must tie a ligature to stop the venom spreading. Others will be wondering why we don't cut the wound to let some of the venom out. It is important in India that we address these two common actions to see if they benefit or potentially cause harm to the victim.

Cutting the Wound

Cutting the wound to let blood and some venom flow out is also a common practice that is wrong. Cutting and bleeding does not release venom from the wound, by the time the cut is made the venom is already mixed.

The more critical problem is that, apart from the risk of infection, bites by Vipers cause the blood to be incoagulable i.e. it will not clot. Cutting the victim makes it more likely that the person will bleed to death!

Treatment: The outcome of all snake-bites depends on a multitude of factors: the size, physical condition, and temperature of the snake,

the age and physical condition of the victim, the area and tissue bitten (e.g., foot, torso, vein or muscle), the amount of venom injected, the time it takes for the patient to find treatment, and finally the quality of that treatment. Promptly securing qualified medical treatment is the best course of action, and conservative management in the meantime is recommended.

Identification of snakes is important in planning treatment, but not always possible. However, in regions like us where polyvalent antivenoms are available identification of snake is not high priority. Antivenom is injected intravenously and works by binding to and neutralising venom enzymes. It cannot undo damage already caused by venom. So antivenom treatment should be sought as soon as possible. Although some people develop serious adverse reactions to antivenom such as anaphylaxis, in emergency situations this is usually treatable and hence the benefit outweighs the potential consequences of not using antivenom.

Some victim may develop respiratory failure due to neurotoxic effect. This group will require mechanical ventilation. In others due to haemotoxic and musculotoxic effect some victim may also develop acute renal failure usually towards the end of first week. This group of patients may benefit hugely by haemodialysis.

Prevention: Snakes are most likely to bite when they feel threatened, are startled, are provoked, or have no means of escape when cornered. Encountering a snake is always considered dangerous and it is recommended to leave the vicinity.

When dealing with direct encounters it is best to remain silent and motionless. If the snake has not yet fled it is important to step away slowly and cautiously.

The use of a flashlight when engaged in camping activities, such as gathering firewood at night, can be helpful. Snakes may also be unusually active during especially warm nights when ambient temperatures exceed 21°C (70°F). It is advised not to reach blindly into hollow logs, flip over large rocks, and enter old cabins or other potential snake hiding-places.

Do it RIGHT for Snake-Bite

Dr Dayal Bandhu Majumdar

One recent experience of a Medical Officer of the Jamtala Rural Hospital of Kultali, South 24 Paraganas should be known to all of us, particularly who claim that, India is a developing country. One 36 yrs. female patient of cobra bite was cured at Jamtala R H on 19th August 2010. This patient was first treated by an Ojha. The patient was brought in a moribund condition. But the relatives of the patient imposed to treat the associated diarrhoea only, not the snake-bite. They were convinced by the Ojha that the patient was dying for associated diarrhoea, not snake venom.

Incidentally the on duty MO Dr. Kashinath Chatterjee was confident enough to manage a case of snake-bite. But the picture in most of the rural hospitals is just reverse. Almost all the new MO's of these hospitals have got no training to manage snake-bite in the medical colleges.

This author wants to draw attention of all the educated people of WB in this article to the extreme necessity of teaching on snake-bite. Some practical tips for snake-bite management would also be described here.

As per his experience of a 'sensitization workshop on snake-bite' held on 21st February 2009 at the CMOH office of West Midnapur, this author feels urgency of such workshops in all the districts of WB. Out of fifty new MO's and about ten seniors who attended the workshop, only one MO said that he had heard of a "National Protocol" on snake-bite. In fact this "National Protocol" was published on 7th August 2007. Even in another workshop held at Mecheda on 2nd October 2009, none of the participants knew the "National Protocol". Experience of this author as a state level resource person in a workshop held in the Swastha Bhaban on 8th February 2010 was nothing different from the two earlier examples.

What is this "National Protocol"? This is very simple; first aid for snake bite is "Do it RIGHT". R is reassurance, I is immobilization, G&H for go to hospital, and T is tell the doctor.

'Reassurance' is very vital; whenever and whatever a snake bites a person, he becomes panicky. This panic may lead to a cardiac attack also. If the victim gets panicky his heart rate would increase which in tern spread the venom rapidly. Try to assure the victim; tell him that, 70% of snake bites are non poisonous. Even if a known venomous snake has bitten, chance of dry bite is 50%. After all, very effective

and sure shot treatment is available in the hospitals. One practical tip is given in the flow chart. Whenever a bite (snake or unknown) case attends a hospital emergency start a plain drip slowly, give one injection of Tetanus toxoid. One drip and an injection are very much assuring to any patient. Then closely observe the patient for any sign of envenomation.

'Immobilization' is more effective than ligature. Immobilize the bitten limb like a fractured limb. If the bite is on the trunk carry the patient in supine position on a stretcher or country cot (*khatia*). The age old ligature technique should be categorically discouraged. Ligature may be dangerous in case of Russell's Viper (*Chandrabora*) bite. Almost all of us had seen the Amir Khan's film "Three Idiots".

One scene there would be a good example to us to learn how to carry a patient on a motor bike. Bikes are plenty in the remote villages also. For speedy transport of a snake-bite victim the patient should be carried on a bike in between two persons as shown by Amir Khan.

'Go to Hospital' has no other alternative. Most of the cases vital time is lost at the house of the Ojhas and other faith healers. These faith-healers have nothing to do in case of venomous snake bite. The one and only treatment is rapid "Anti Snake Venom Serum"(AVS) administration. We should be proud of our Polyvalent AVS. This has simplified the treatment of snake-bite. This AVS is available in all govt. hospitals of WB. According to Dr Ian D Simpson (he was the representative of WHO for snake-bite protocol group in India), AVS treatment should be available in all the health centers. According to the field experience of this author, AVS treatment is possible even at a Primary Health Center of WB. Actually PHC must be the nodal hospital for snake-bite management. Because intervention time is the most vital factor in AVS treatment. As the accidents of snake-bite occur in the rural areas only; treatment must be available in the nearby PHC, not at the 2nd tier or referral hospitals. Some examples of bad complications due to late administration of AVS would be mentioned later.

Our colleagues working at the rural health centers may be encouraged to know the activities of Dr Rafiq of Debra Rural Hospital of West Midnapur. Dr Rafiq is treating all types of snake-bites there. Not only that, he is doing miraculous diagnosis in some atypical snake bite cases. This author cannot resist himself from mentioning here a case treated successfully by Dr Rafiq on 9th August 2009. This patient presented in the morning only with epigastric pain. While interrogating the patient Dr Rafiq noticed some amount of drooping

of eye lids of the patient. Then the patient complained of some amount of difficulty in deglutition on leading question. This patient was saved by AVS treatment by Dr Rafiq. Latter he gave full credit to the workshop he attended on 21st Feb. at CMOH office of West Midnapur.

That a Common Krait (*Kalaj* snake) bite may present only with pain abdomen or arthralgia or sore throat that was not known to even a senior general practisioner of Mecheda. This *Kalaj* snake is a mysterious snake for its painless bite. No bite mark would also be seen in most of the cases. *Kalaj* bite may kill a victim in sleep also. This snake has a strong neurotoxic venom which do not respond to Neostigmine. Keep in mind that, Cobra venoms respond promptly to Neostigmine injection but Krait and Russell's Viper venoms do not. Fatal dose of RV venom is 42 mg, that of Cobra venom is 15 mg and fatal dose of *Kalaj* venom is only one milligram!

Whatever may be the condition of the patient first regime of ten vials of AVS must be given at the PHC level. Most of the cases of Kidney complications in case of Russell's Viper bite are due to delayed administration of AVS. The goal is to neutralize the free venom in the body as early as possible. When the renal papillae are already damaged what benefit would you expect at a referral hospital? In that case only fate is repeated dialysis. Why should we not try to treat the patient before kidney damage?

The protocol suggested by Dr I D Simpson was followed by this author vividly in the Habra State General Hospital on a number of patients with very good results. The protocol is very simple. Whenever you get the earliest sign of envenomation give ten vials of Polyvalent AVS rapidly intravenously (same dose for children also). Don't kill time to search or count the bite marks or to identify the species of the snake. If you get neurological signs like ptosis, hoarseness or dysphagia give three ML (1.5 mg) Neostigmine intramuscularly along with one ampoule (0.6 mg) Atropine IV (for adult). The snake-bite management guideline of WHO south-east Asia region, published in 2010 is same as was suggested by Dr Simpson. If you suspect a hematotoxic bite, that is a RV (Chandra Bora) do a 20WBCT test (do not wait for a red colour urine). This 20 WBCT is very simple. Draw 2-3 ML of venous blood and keep that in a dry test tube for 20 minutes. In case of coagulopathy, the blood would remain liquid after 20 minutes, because normal coagulation time is 8 minutes maximum. Hematotoxic bite patients should be referred to a referral hospital only after administration of 10 vials of AVS. If coagulopathy remains present after six hours, 2nd

regime of AVS is to be given (preferably at a referral center). Maximum 30 vials is recommended in this case.

Injection Neostigmine and Atropine is to be repeated after two hours if neurological signs persist. But keep in mind that, there would be no benefit of giving Neostigmine in Krait-bite.

Injection Adrenaline must be kept in hand to manage any adverse reaction to AVS. Early signs of AVS reaction are scalp itching, Urticarial rashes, fall of BP, Vomiting, pain abdomen or Angioedema. Last complication is rare; though would look dangerous, one injection of half ampoule Adrenaline intra-muscularly (not S/C) removes all signs within 8-10 minutes.

Do not kill time in doing a skin test for AVS. Skin test is very often false negative. Even if the test is positive you have no other alternative for giving AVS. AVS is life saving; so, you must give it. Some doctors use Hydrocortisone injection to prevent reaction to AVS. No benefit is found with preventive Adrenaline injection. For kind information of my old friends, who still stick on a skin test, I humbly utter the names of great snake bite experts like Prof. David A Warrell, Dr. Himmat Saluba Bawaskar and Dr. Ian D Simpson. All of them had categorically discarded a skin test. This author is proudly mentioning the e-mail from Prof. Warrell on 14th July 2010. This professor of Oxford is the snake-bite consultant of WHO. He had sent a mail, where he categorically discarded any skin sensitivity test for AVS. Progressive swelling is the commonest sign of envenomation. There would be local pain along with swelling in case of RV and Cobra bites. Always keep in mind that, there would be no local sign in case of Krait-bite. Scorpion-bite gives tremendous pain but no swelling. Local swelling due to a tight ligature may be misleading. Here comes the dictum of "Tell the doctor".

The accompanying persons should thoroughly narrate the signs and symptoms they have seen on the way to the health center. History of open floor bed (as practiced commonly by villagers) is very much helpful to suspect a Kalaj bite.

Here we can learn something from the case history of Tarun Bag, 13 yrs. male patient who came to a private nursing home at Mecheda of East Midnapur district on 21st September 2009. The boy did get up from bed as usual in the morning. He took his breakfast in time. He complained of some sore throat at about 8 a.m. to his mother. After about half an hour he repeated his complaint to his mother along with new sign of drooping of eye lids. Now he was taken to a village quack. The quack gave him an injection (not known to any body). As the boy was gradually failing to open his eyes he was taken

to the nursing home. He was extremely lucky to be diagnosed as a case of Kalaj-bite by a physician who attended a workshop on 5th Sept. only. The boy went to total respiratory failure with in a short time and was intubated for artificial respiration. They moved to Kolkata in an ambulance with manual ventilation by Ambo bag. They gave him 10 vials of AVS in the ambulance at Uluberia.

To increase our guilt and shame the patient was refused by a Medical college of Kolkata. Ultimately this boy was kept in mechanical ventilator for five days in a private nursing home. This author felt lucky to get this patient for a workshop at Mecheda where this patient was presented to all the participating doctors. To increase our knowledge, one Kalaj snake was caught from the room where the boy slept without a mosquito net.

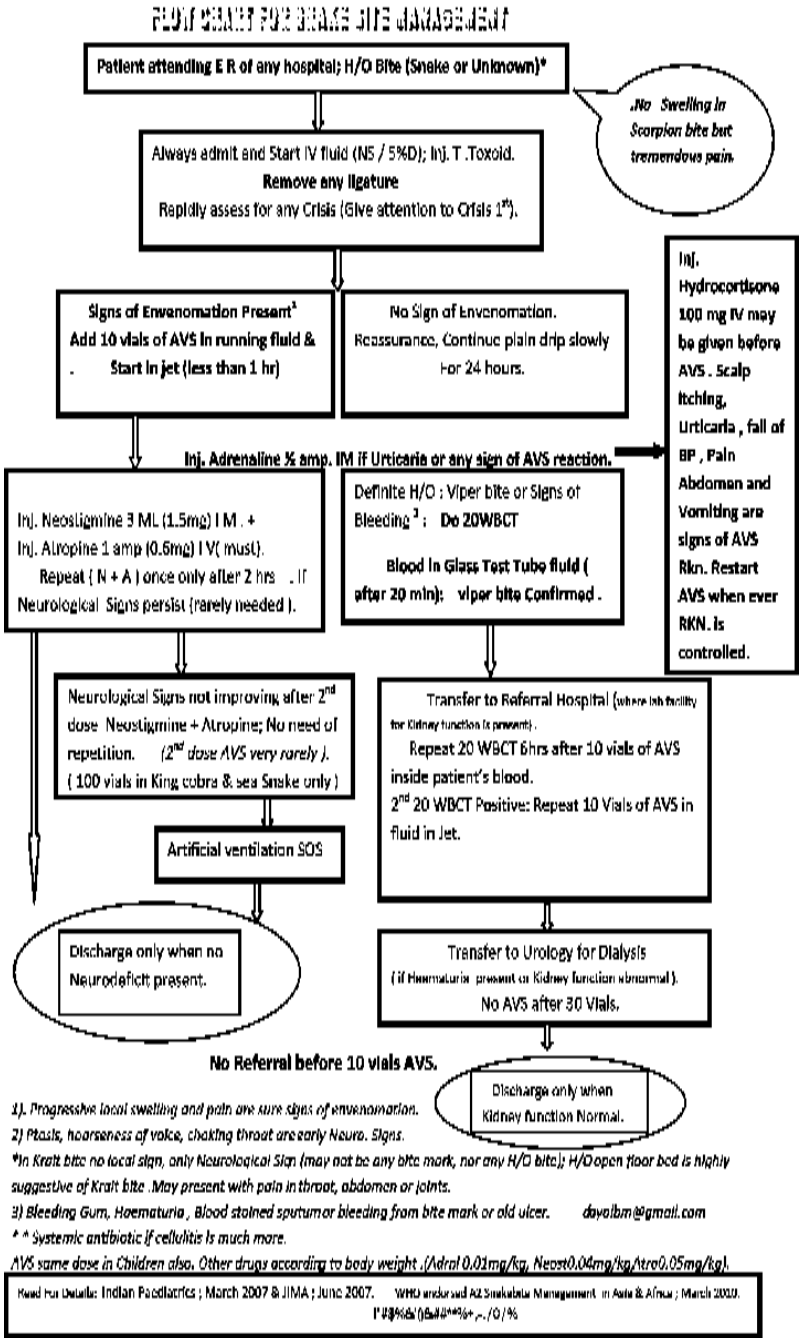
Sanatan Mandi from Garbeta of West Midnapur and Nepal Pal of Damodarpur village of East Midnapur got dialysis at SSKM Hospital and SN Pandit Hospital respectively. Both of them were bitten by RV snakes did not get AVS at local PHC, late and inadequate AVS at district hospitals and ultimately presented with hematuria. According to one MSVP of a Medical College of Kolkata, both these patients could be treated at PHC level to avoid undue load to the dialysis units of the city hospitals. According to this MSVP, more than 75% of the dialysis patients of the city are due to complications of Russell's Viper-bite. In June and July 2010 all the govt. dialysis units of Kolkata were engaged for managing Viper-bite patients.

Can't we take some necessary action to save these patients from undue morbidity? Not only that, AVS treatment at PHC level would cost about four thousand rupees of Govt. money. On the contrary kidney complication followed by dialysis is costing not less than forty thousand rupees of Govt. money.

Concluding with the hope that, all the CMOHs of WB would feel the urgency of arranging workshops on 'Snake-Bite management' for MOs of PHCs. And all the principals would arrange for regular classes on 'Snake-Bite management' in all the Medical Colleges of West Bengal. So that, all our colleagues and future doctors can learn "Do it RIGHT".

Not only the health department, the well maintained panchayet system, the schools and Anganwari workers should be involved to spread the message of "Do it R.I.G.H.T"

One very simple flow chart for snake-bite management is given here. This author is always ready to volunteer with study materials including a tutorial video CD for non-commercial use.



Role of Dialytic Therapy after Snake-Bite

Dr. Swapan Karmakar

Snakes intrigue, fascinate and most of the time horrify. Since time immemorial they have been shrouded in mysticism and superstition and have been an object of worship — probably due to fear or respect. In Hindu mythology Lord Vishnu is shown as lying over many headed cobra called Shesnag and Lord Shiva has cobra coiled round his neck. Many emblames have snakes as an essential symbol. Many cultures have an auspicious day especially reserved for worshipping snakes, like *Manasa Puja* in West Bengal.

Snakes are found in the vicinity of human settlements especially in rural areras which are agricultural and have rats in abundance. Less than a quarter of all snakes are venomous and they rarely attack people unless provoked. Snake-bite cases cluster around the time when there is heavy rain, floods, deforestation — most cases report during rains and floods.

All the venomous species belong to one of the five families :

1. Elapidae (Cobras, Kraits, and coral snakes)
2. Viperidae (true vipers)
3. Hydrophidae (sea snakes)
4. Crotalidae (pit vipers)
5. Colbridae (bird snakes)

Snake venoms are mixture of complex toxins. The major groups of toxins are

a. **Neurotoxins** — causes flaccid paralysis of skeletal muscles.

b. **Myotoxins** — results in massive skeletal muscle breakdown, with resultant muscle weakness, pain, tenderness, high creatin kinase, myoglobinuria and potential for secondary renal failure and hyperkalaemia.

c. **Haemotoxin** — attack haemostasis and vascular integrity resulting in coagulopathy, haemorrhage and sometimes shock.

d. **Nephrotoxin** — cause primary and secondary damage to the kidneys which varies from mild renal impairment to bilateral renal cortical necrosis.

e. **Necrotoxins** — cause local tissue injury varying from mild effects to major limb necrosis.

Our topic here is on the role of dialytic therapy after snake bite. Snake-bite is an important and preventive cause of Acute Renal Failure (ARF) in India and dialysis is the mainstay of treatment there. It

usually follows viper bites. Russell' viper and *Echis carinatus* are the important viper species in India. It is estimated that about 10,000 people die in India every year due to poisonous snake-bite.

Immediately after snake bite the recommended first aid is based around the mnemonic :

''Do it R.I.G.H.T.''

It consists of the following :

♦ R = Reassure the patient. One shall attempt to allay the anxiety by stressing upon the fact that around 80% of snakes are non-poisonous and even the bite from a poisonous snake may not need necessarily to envenomation. Victim should be assured that effective treatment is available and there is always a reasonable time available for transportation to proper health care facility.

♦ I = Immobilise the bitten limb in the same way as the fractured limb. Use bandages or clothes to hold the splints, not to block the blood supply or apply pressure. Do not apply any compression in the form of tight ligatures, that don't work and can be dangerous.

♦ G.H. = Get to hospital immediately. Traditional remedies by snake-bite healers, snake charmers and religious men, who use herbal remedies, chant devine 'mantras' and apply 'snake stone' causing delay in seeking medical aid have no proven benefit in treating snake-bite.

♦ T = Tell the doctor of any systemic symptoms like drooping of eye lids (Ptosis) that manifests on the way to the hospital.

Assessment for evidece of envenomation and renal impairment

All patients are assessed for evidence of haemotoxicity, nephrotoxicity, neurotoxicity, cardiotoxicity and local toxicity.

Haemotoxicity (coagulation defect or coagulopathy and intravascular haemolysis) : It is manifested as spontaneous continued oozing of blood from site of bite or site of intravenous access, echymosis on surface especially on pressure points and bleeding from mucus membranes like conjunctival haemorrhage, haematuria (red cells in urine), bleeding gums, haematemesis (blood vomiting), melaena (altered blood producing black stools) and haemoptysis (coughing out blood).

If nothing so is visible at the time of first examination, then ''Twenty minute whole blood clotting test (WBCT 20)'' is performed by drawing 5 ml. of blood in disposable plastic syringe — left undisturbed for 20 minutes and observed for evidence of clot formation. If clot does not form the envenomation has occured.

If frank haemotoxicity is evident then evaluation is extended to

assess for possible intracranial haemorrhage, intraperitoneal and gastrointestinal haemorrhage, excessive menstrual loss and intramuscular haemorrhage, which may present as compartment syndrome, i.e., compressing some nerve or blood vessel. Effects of volume depletion and massive release of haemoglobin leads to acute renal shut down.

Nephrotoxicity : Venom toxin could damage the kidney either directly or indirectly. Indirect damage occurs due to deposiiton of haemoglobin or myoglobin in renal tubules and dehydration is another contributory factor. Clinically the patient develops oliguria, dark coloured urine, oedema loin pain and features of uraemia (acidotic breathing, hiccups, nausea). Rising blood urea and serum creatinine, development of metabolic acidosis, hyperkalaemia, microscopic haematuria and casts in urine are biochemical markers of renal damage.

Myotoxicity : The effects of venom on muscle produce generalised muscle pain, stiffness, trisms and tenderness (rhabdomyolysis) leading to myoglobimaemia and myoglobinuria. Patient voids dark red urine. Rhabdomyolysis leads to hyperkalaemia and it gets worsen further due to acute renal failure secondary to myoglobinuria.

Neurotoxicity : Neuro muscular transmission block leads to paralysis of muscles of varying severity. The worst is the paralysis of respiratory musles which require artificial ventilation for survival.

Cardiovascular effects : Manifestations are usually tachy or bradyarrhythmias, rapid thready pulse, hypotension or hypertension, chest pain and pulmonary oedema.

Local reaction : Swelling and pain are the earliest symptoms appearing within minutes of the bite. In severe envenomation the swelling can extend to whole of the limb within 12-24 hours. This is due to vasculotoxic effects of the venom on capillary endothelium. In many patients blisters are seen with severe envenomation.

SPECIFIC TREATMENT

Antivenom Treatment : AVS should be started at the earliest sign of systemic envenoming and it is quite effective in reversing the clotting defect (WBCT 20).

Dialytic therapy : When diagnosis of acute renal failure is established (a. declining or no urine output although not all cases of renal failure exhibit oliguria, b. rising blood urea, serum creatinine and potassium level, c. evidence of uraemia or metabolic acidosis), dialysis is the mainstay of therapy. As soon as a patient is assessed as a case of renal impairment following snake bite he or she should immediately be shifted to a health care centre with facility for dialysis.

As renal replacement therapy with haemodialysis and peritoneal dialysis are done but haemodialysis is the preferred mode and more effective also.

Haemodialysis : Works by removing blood from the body and circulating it through special filters outside the body. The blood flows across a filter, along with solution that help remove toxins. The blood is then returned to the body.

Haemodialysis uses special ways of accessing the blood in the blood vessels. In ARF temporary accesses are made which involves placing dialysis catheters (hollow tubes) into large veins ususally in neck, chest or leg near the groin. In ARF they are used for short periods of time.

Haemodialysis process needs a dialysis machine. Blood is pumped out from the body and carried through a dialyzer blood compartment and it is exposed to a semipermeable membrane. A negative pressure is applied to the dialyzer's dialysate compartment which causes removal of wastes and water from blood to dialysate. Thus liters of fluid may be removed in 3 to 5 hours.

Peritoneal Dialysis (P/D) : No machine is required here. It can be carried out at any place. The requirements here are P/D set, P/D catheter and P/D fluid which can be made available at any health centre even. In this process the peritoneal membrane which is the lining of our abdomen acts as the semipermeable membrane. Through the P/D catheter a sterile solution of minerals and glucose (dialysate) is run into the cavity around intestine — known as peritoneal cavity. Dialysate absorbs waste and water and is drained out through a tube. The fluid flows from the blood to dialysate as a result of osmotic pressure. P/D is preferred for a patient who is haemodynamically not stable.

Dialytic therapy after acute renal shut down following snake- bite is very much effective but special care should be taken when the patient starts urinating (i.e., the patient goes to diuretic phase) regarding fluid replacement, nutrition and electrolyte imbalance.

Snake-bite in India is an occupational hazard mainly for the agricultural and other labours. The high risk period for these people is at monsoon times when (a) snakes are more active, (b) grass and bushes are dense and (c) field labour is at its maximum. If all snake-bite cases receives prompt antivenom treatment, it should dramatically reduce the incidence of deaths from this cause.

We conclude that huge number of acute renal failure cases are seen every year who get cured with dialytic therapy and we hope that with better awareness among patients and primary care physicians the incidence of snake-bite induced ARF could be reduced and many useful lives saved.

Experience on Treatment of Snake-Bites

Dr. Samarendra Nath Roy

Snakes are reptiles, cold blooded creatures. From the ancient times, poor or rich, educated or uneducated, Govt. or non-Govt., villagers or citizens, believers or non-believers of science, officers, even doctors have lots of inquiries. Even today, if a person (from which ever class he is) is being informed that there is a snake hiding inside your room or house, the very first reaction of that person will be of fear. Then he will start thinking about the nature of the snake, i.e. whether it is poisonous or non-poisonous, shall I kill it or chase it away, and so on. Different people will exchange different views and even after snake-bites the discussion continues, then, it will be very late.

In todays world, people are getting affected by different diseases, every second. If we are careful enough from before, then we can save ourselves. However, there are certain diseases, like heart-attack, for which we never know when it will happen, and as such we cannot alert ourselves. At the same time, if a poisonous snake bites, treatment is the first priority, otherwise the patient will die. For such treatment we have all the facilities at the Health Centres, yet we cannot stop deaths form the snake-bites.

Present author is working as a Govt. doctor. He has been working for the past 20 years in the Sundarban Govt. Hospital. He has been working with different patients including the snake-bite patients. This article is based on such experiences. The first concept that we gather from this experience is that during our medical study, we had less opportunity to treat such patients.

There is a difference between the snake-bite patients. We used to treat patients with modern medicines, before joining my service. There has been a lot of modification in such treatments. However, the very first quality the doctor should have before starting of with the treatment is self-confidence. He has to identify exactly what type of snake has bitten that particular patient, whether it is poisonous or non-poisonous. He has to judge this properly because the whole treatment will be depending on it. So, the doctors has to understand what are the symptoms of poisonous snake bites and non-poisonous snake bites. In the Sundarbans, the poisonous snakes are mostly Cobra, Common Krait, etc. (Neurotocxic snake). These are occupying almost 70% of this area. But among these, the most dangerous snake is Common-Krait. On the other hand, Banded Krait is getting extinct.

Now I will be giving you the description of the treatment of some patients.

1] A man whose age was around 24-25 years, Gosaba Block, got admitted to the Canning Hospital at around 5.30 pm. Possibly after 12-14 hrs of snake-bite, he was brought to the hospital. Apart from heart beat, nothing else was regular. The snake bites him on the finger of the toe and as he being a coloured person bite marks could not be identified. Froth was coming out of his mouth, his eyes were closed, the eye balls dried up, and urine was not passed for a long time. Without wasting time, we started his treatment. All the Hospital staff, including the nurses, did an awesome job. Being a doctor, I had the feeling that I am trying to bring life to a person who was almost dead. Then, a hand from behind tried to encourage me. It was Juktibadi Sanstha's (Canning) Bijonda. With a smile he said, everything would be fine. At that time I did not understand him but after few hrs. I did understand why he said so. The patient first made a sound from his mouth and then tried to open his eyes. Bijon Babu was present in the Hospital at that time. It was he who encouraged me to move ahead with the treatment, and finally the patient's life got saved. I am not going into details about the treatment, but I must say, after this incident, the difference between the Hospital and the patient party became narrow. The boy who inspite of what the neighbours or family members said, brought the patient to the hospital, was also relieved. He once said if the patient does not survive, he wouldn't be able to go back home.

We must say, that a little bit of extra effort can save many people's lives.

2] A man, whose age was around 50-55 years, from Canning No. 2 Block, Herobhanga, got admitted to the hospital at around 5-6 in

the morning. Froth was coming our of his mouth, vomiting, stomach ache, loose motion. etc. symptoms were noticed, along with drowsiness. The family members said that in the beginning, they thought it was a case of dysentry. Later it was known that he was sleeping on the balcony without mosquito net. At night, he felt pain at stomach and vomited. He even passed stool many times at night and a times became senseless. It was the month of June-July, and at this time activities of Common Krait are more, so without wasting time, treatment was started. After some time, the patient got back his sense and recovered. He was then taken back to his home.

This year, in Canning-Block 1, there had been no deaths due to snake-bites. This did not mean that snakes had lost their venom. It was only made possible by team work and the same was done by Canning Juktibadi Sanstha. It created miracles. We got immense success under one slogan "Don't waste time, go to Hospital, start treatment of snake-bite patients with AVS" .. For that, hundreds of people flocked to the Hospital for the treatment. In this way many lives got saved.

There has been a lot of confusion, on one side loads of superstitious beliefs and on the other hand wrong attitude about Hospitals. In this tangle, it was Canning Juktibadi Sanstha that had come forward and solved this disbeliefs. Another feather to the hat was more and more people got their lives back even after being bitten by snakes. However, now when people started the confidence building measures against the Hospital, it is also the duty of the Hospital to keep adequate supply of AVS. At the same time, all the doctors should come forward and take the responsibility of doing the treatment.

Our District Chief Health Officer, Dr. Sachidananda Sarkar said that all the time there is no need to transfer patients to other Hospitals. Yes, the person who needs dialysis, needs referred but others should be treated there, at their Hospital. It will be observed that people will get good treatment at our hospitals and they all will be happy. 10 years before we never experienced such cases of snake-bites. That did not mean that there were not less snakes or people used to suffer less snake-bites. There were many Cobra and spectacles Cobra. But the increase in numbers of Common Krait has definitely raised the snake-bite cases. We, the people of the society need to be more cautious and at the same time the doctors should also take the initiative to lower the death rates of snake-bite patients.

One day, when I got down at the Canning Railway Station, a boy from behind called me and asked me to stop. I did not recognize that boy. He came up to me and said, 'Doctor, did you recognize me?' He

introduced himself and his widow mother and said that it was I who saved his life. His mother fell on my feet and started crying. At that moment I felt that I have achieved something for being a doctor and it was a success.

It has been observed that before starting with the treatment, if we can identify that the snake-bite is of a poisonous or non-poisonous snake, then it will make our work a bit easier. This will make us go directly for the treatment instead of experiment. Moreover, extra dose of AVS injection does not always help. This is what we usually do because of not being able to identify the cause. It is obvious that within 4 hrs. of snake-bite, if AVS is injected then the patient will surely recover.

Years before, the patient who used to come to the Hospital was not only bitten by snakes, but also cases of scorpion bites, beetle bites, etc. The snake-bite cases were mainly of poisonous type. This was because most of the cases involved were the Cobra. During the season, when people were working in their fields, etc. these were the places in which the Cobras were mainly active. If not noticed properly, then a bite case happened. It had been observed that there were many symptoms of snake-bites like, froth, stomach ache, loose motion, breathing trouble, etc.

Some patient may not be able to describe what's wrong with them. In those cases, we have to notice certain things such as unconsciousness, drooping of upper eyelids etc. are present or not. We have to check the sense at the feet, fingers, at the joints in the legs, etc. We have to monitor the situation and check if the AVS injection is proper or not. Whether the snake is a Common Krait or any other etc.

Previously, the patient-party used to bring the snake along with them to the Hospital. Usually they were Cobras. Even today, many poisonous snake-bite cases come to the hospital. Although they understand in certain cases that it is less poisonous yet they would come to the hospital last not before touching the exorcist's place (Ojha).

I have done various discussions about snake. I have mentioned case-history of some patients. It seems to me that case history of one patient is different from other patient that a physician must know and understand otherwise there may be problem in case of snake-bite patient treatment.

Now I shall discuss treatment of two types i.e. Neurotoxic and haematotoxic snake bites. At first I am mentioning of haematotoxic, signs & symptoms have already discussed. All will depend on that condition of the patient in which state he will be presented to us.

Treatment

1. Injection Tetanus toxoid – ½ C.C. I.M. start (If not given by other doctor, such as nural doctor).
2. Intravenous Fluid – Injection N.S. : R.L. : 5% Dextrose :: 1 : 1 : 1
3. Injection AVS – 10 vials in first two saline bottle, after that it may be reduced depending upon the condition of the patient.

How long and how much Injection A.V.S. will be continued that also depend upon (i) the condition of the patient, (ii) duration between the bite and starting of treatment, (iii) how much venom entered into the body, (iv) what are the effects of venom on the person.

I may also mention that if the condition of the patient is very critical the physician have to think that time in hand is less and the time is more important, as have to start AVS stat without wasting any time.

4. Injection A.V.S. – 2 vials intranvenous stat. It may be repeated several times according to the situation.
   Before giving A.V.S. skin test is necessary. But in case of poisonous snake bite, if the skin test is positive the A.V.S. must be applied as there is no other alternative treatment. It is my experience.
5. We may perform another I.V. Channel in other hand and can push two or three vials of Injection Hydrocortisome by mixing it with I.V. fluid.
6. To prevent an aphylactic reaction Injection Adrenaline S.C. should be used. We do not use Injection Antihistamic as it causes drowsiness/sleep which hamper's in diagnosis and to understand and the prognosis of patient.
7. Injection H_2 blocker/Injection Pantoprasite – Intravenous.
8. Injectable Antibiotic (Generally Injection Ceftrioxone/Cefotaxim Sodium).
9. As pain killer – Either oral Paracetamol – or Injection Diclofenac Sodium may be used.
10. If there is respiratory distress (which usually appear in late) (i) Moist O_2 inhalation (ii) Injection Deriphylline I.V./I.M.
11. If there is any sign of muscle paralysis – Injection Neostigmine – 1 amp or 2 amp I.M. – 2 to 4 hourly.
12. Injection Atropine – If the pulse rate reduced too much – IM/IV 1 or 2 amps.
13. Continuous catheterization by Foley's catheter – It is very much essential to examine the urine output and colour and laboratory investigation of urine.
14. Bite marks should be dressed with antibiotic ointment.

Investigations

1. Blood coagulation test.
2. Routine examination of Urine.

In routine examination – Albumin + Microscopic Examination

RBC + Granular cast + procedure of whole blood clotting time or blood coagulation test.

1. 5 ml of blood is placed in a glass containers, kept at body temperature and observed.

a) A clot should occur in 5 to 15 minutes.

b) The clot should retract in 30-60 minutes.

Weak friable clot – Hypofibrinogenaemia,

Early dissolution – Enhanced fibrinolysis, when a haemototoxic patient have to refer to a higher centre where is an arrangement for dialysis.

1. If oedema increases gradually.
2. If R.B.C. is present in the urine.
3. If there is long delay in starting treatment.

As many patient live after 24-72 hours.

Now I shall discuss the treatment of neurotoxic bite patients. In bite by these type of snakes the action of venom starts very rapidly and patient die early, so treatment should be started very rapidly and with promptness. I have stressed over the two points from the very beginning, firstly when the bite has happened and how rapidly the A.V.S. has started in the hospital. Secondly case history should be taken in details and accurately in every cases.

Treatment

1. Injection Tetanus toxoid – ½ c.c. IM start.
2. I.V. drip – N.S. : R.L. : 5% dextrace :: 1 : 1 : 1
3. Injection Ranitidin / Injection Pantoprazole 1 amp. I.V. BD.
4. Injection A.V.S. – 10 vials in first two saline bottles after that it may be reduced depending upon the condition of the patient.

Here I may mention that in case of neurotoxic patients the venom acts very rapidly and patient usually die due to respiratory failure which caused by respiratory muscle paralysis, so A.V.S. should be given very rapidly.

Intravenous A.V.S. should be given repeated times. When the condition of the patient will improve and the signs dis appear gradually the dose of the A.V.S. will be reduced gradually but after that maintainance dose will be 2-4 vials in each bottle of fluid for 12-24 hrs. We may do skin test.

5. Injection Dexamethasone – I.V. al or 2 vials I.V. start – To combat the allergic reaction of A.V.S.
6. Injection Hydrocortisone – 1 vial or 2 vials I.V. start – It also combat allergic reaction of A.V.S. and prevents respiratory paralysis.
7. Injection Neostigmine – 1 amp or 2 amp 4-8 hourly, if there is respiratory muscle paralysis.
8. Injection Atropine – if there is slow pulse rate.
9. Injection Diclofenac sodium – 1 amp. To reduce the pain.
10. Injection Deriphyllin – 1 amp. I.V./IM – If there is respiratory distress.
11. Injection Frusemide – 1 amp. IM/IV
12. Injection Methylcoloalamin – I.V.
13. Moist O_2 inhalation – It should be given earlier if there is respiratory distress.
14. Nebulisation with Asthalin & Budecort inhaler.
15. Continuous catheterization by Foleigs Catheter.
16. If there is facility mucus of mouth & respiratory passage should sucked by suckers machine as mucus accumulation may lead to aspiration. We have seen that after paralysis of respiratory muscles and deglutition muscles patient may aspirate during vomiting and patient who was better previously by getting A.V.S. suddenly aspirate and deteriorated following respiratory collapse.

People who came forward in cases of snake-bite A Tribute to the medics and paramedics of the Canning Sub-Divisional Hospital

Sanat Kumar Sanpui

In the year 1991-92, it has been observed that most of the snake-bite cases were being referred to the Hospitals of Kolkata from Canning Sub-divisional Hospital. On one hand, the Juktibadi organization kept on with their campaigning and on the other hand it kept a strict vigil on the working of the Canning Sub-Divisional Hospital. As such we had to hear many unpleasant comments and criticism from some doctors while some doctors came friendly to our organization.

Once it happened that a patient died due to snake-bite. Because of his death, there was huge confusion all over the village. Organisation, in the meantime, continued with their campaigning,

street-meeting, postering, etc. In the meantime, number of visits to the Hospital were increased by our workers. New doctors started visiting the Hospital and took special care on the treatment. As a result, the case of referring to other Hospitals in Kolkata diminished, and the rate of survival of the patient increased.

Following is a table which gives us such detail information :-

Year	Total Patient	Non-Poisonous	Poisonous	Death
2004	190	178	12	6
2005	270	252	18	2
2006	292	270	22	3
2007	470	423	47	1

Ref: Canning Sub-Divisional Hospital

From March 2007 to December 2007, cases of poisonous snake bites were 47. Out of which 1 died. This patient was from Canning Block – 2 and before coming to the Hospital, he was taken to the "Ojha" (exorcist) and within 15 mins. of admission to the Hospital, the patient died. Doctors at the Hospital did not get a chance to do any treatment. It can also said that out of 47 patients, 31 patients were male and 16 were female. Most of them came to the hospital in a senseless condition and their condition were described by their family members as "anything can happen, any time" (last stage). Doctors took the responsibility of all these patients and cured them. Few were referred to other Hospitals and it so happened that some of them died on the way. In the mean time, Canning Sub-Divisional Hospital is moving ahead and maintaining a balance, in their work. Patients from 11 Blocks came to them. For example : Canning – 1, Canning – 2, Basanti, Gosaba, Kultuli, Baruipur, Sonarpur, Sandesh Khali – 1, Minakhan, Vangor and Tiljola.

One of the most encouraging report of 47 patients who were bitten by poisonous snakes – Canning – 1 Blocks counting report :

December2007	Total Victim	Non-Poisonous	Poisonous	Deaths
	198	180	18	0

Canning – 1 Block (Report of Deaths in the Previous Years)

Year	Deaths	"Ojha" (exorcist)	Canning Sub-Divisional Hospital
2004	4	1	3
2005	5	4	1
2006	3	1	2
2007	0	0	0

Courtesy : "Ojha" (exorcists), Doctors, Panchayet, Teachers, Field-workers, Villagers.

In the workshop of the Canning Juktibadi Sanskritik Sanstha, people of different occupation was recruited. The result of death rate came down to '0'. We thanked the South 24 Pgs. Chief Health Officer – Dr. Sachidananda Sarkar. He once said – "In the case of neurotoxin snake-bite, instead of referring, try to treat the patient. If any thing happens, I take the responsibility of it." We should give lot of thanks for his courage and self-confidence.

In the workshop of the 'Ojha's (2003), the name of the trainer was Dr. P. G. Ray who was also known as Pachu Ray. He said – "Snake bites are such incidents which can be lowered to zero". Canning – 1 is one such example.

On 4th January, 2008, Juktibadi Sanskritik Sanstha, Canning – 1, paid tribute to those doctors, nurses, Hospital Staffs, staffs of other dept., etc, for their encouraging support in this campaign. We received blessings from all castes of people and for the success of the organization we received donations from Canning – C.D. and Market Business Associations.

We hope that the campaign – "No Death because of snake bites" will spread in other blocks too.

Appendix

Juktibadi Sanskritik Sanstha

P.O. Canning Town, Dist. South 24 Parganas, West Bengal,
Ph. 911856076

To
The Chief Scientist
Deptt. of Renewable Resources
Govt. of West Bengal
Bikash Bhavan (5th Floor)
Salt Lake, Kolkata- 700 091

Research Documents
Focus : A Novel Idea from field experience to combat the death rate caused by Common Krait bite in Sundarban Area.

Snake - which is great funk to the islanders of Sundarban and a large number of people in this area died of biting by Common Krait (Kalaj) which is highly poisonous among five poisonous snakes in this area.

Juktibadi Sanskritik Sanstha, Canning has been working in Sundarban area (19 blocks) about snake-bite, lack of treatment and death caused by it, in the remote villages for last 18 years.
Our organisation has also recorded the facts of deth while conducting the observation and field survey and searching of facts about death rate caused by snake-bite.

Year	Block	Are in Sq. Km.	Death
1993	Canning-I	216.0	22
	Canning-II	22.1	21
	Basanti	289.1	19
	Gosaba	332.5	24

It is observed that 57.3% of snake-bite deaths are caused by highly venomous snake 'Kalach' (Common Krait), which is quite high in number in this area. The percentage of snake-bite death is higher than any other state in India. That is why we have tried to search an alternative way to solve this problem and have gained an important experience, finally we have discovered a new way.

Venomous *Banded Krait* never bites human and Kalaj (Common Krait) is the main food of this Banded Krait. With this Relation of natural antagonism ecological balance was maintained very well till 20-25 years ago. But the irony is that, the population of Banded Krait has reduced very much due to some unknown reasons in Sundarban area.

More Banded Krait ⇨ Less Common Krait ⇨ Less Snake-bite death

Therefore, we solicit the appropriate authority to extend their support to us for preserving the Banded Krait scientifically and breeding of it to increase its number and spread them in the Kalaj affected villages. By this way it is possible to reduce death rate caused by snake-bite.

Thanking you
Date :

Yours faithfully
Jahanara Khan
Bijon Bhattacharya
Niranjan Sardar
Juktibadi Sanskritik Sanstha
Canning Town, 24 Parganas (S)

Mentionable Work

1. Participation in pulse polio programme – 06.12.1998 - Canning – 1 Block.
2. Shooting programme on the activities of Juktibadi Sanskritik Sanstha by B.B.C. – Canning 2 No. Dighirper, 24.03.2000.
3. Celebrate 105th death anniversary of Sri Lui to press demand for availability of A.R.V/ A.V.S. vaccination in hospitals.
4. Organised 1st Campaign against the proposed Nuclear reactor, Canning Convention, 19th July 2000.
5. Signature Campaign and mass movement for the protection of Royal Bengal Tigers of Sundarbans – July 2001.
6. Map disentry different types of snakes found in 24 Pgs (S) – Published, Canning 24.04.2002.
7. Sensitisation Programme organized at N.R.S. Hospital with the doctors on invitation of Dr. Alok Ghosh, Head of the Department of Medicine – 17.09.2002.
8. Participation of "Ojhas and Gunins" on snake related workshop.
9. "Snakes of Sundarbans" Documentary film shown at NANDAN and letter of appreciation by the C.M. of West Bengal – 12.06.2004.
10. Felicitation of successful "Ojhas & Gunins" – Calcutta Press Club – 16.06.2004.
11. The research paper regarding interrelation between Banded Krait

and Common Krait nominated and read in "Bengal Science Congress".
12. "Snakes of Sundarbans" documentary film published, Calcutta Press Club – 12.06.2004.
13. Raised doubts about the quality of A.V.S. supply to Canning Sub-divisional Hospital.
14. Publication of map of India and statewise map of West Bengal – first time on the basis of snakes – namely 'Manchitra Banglar Saap' opening ceremony by Chief Minister of West Bengal.
15. Cycle ralley throughout West Bengal with a slogan save snakes – save lives – 16th April – 5th May 2007.
16. 2nd time raised doubts about the quality of A.V.S. supply and organized deputation – 25.07.2008.
17. Honouring the doctors, nurses and other staff of Canning Sub-divisional Hospital regarding the achievement of snake bite treatment.
18. Awareness programme organized – financed by NRHM of W. Bengal Govt. on snakes, snake bites and treatment - started from 05.02.2008.
19. Organised training to ICDS workers of different sub-divisional levels on snake related matter – 2008-2009.
20. Organised sensitisation programme among the B.M.O.H. on invitation of C.M.O.H. of East Midnapore and same programme at Zila Parishad.
21. Active participation in medical and other services in flood affected and other natural disaster areas.

Annual Function of
Juktibadi Sanskritik Sanstha, Canning

1. "Workshop on Snakes, Snake-bites and its remedies" – 32 Workshop held.
2. Rally on 15th August – "Save People, Save Snakes" under this banner – Street drama, Lectures, Snake shows, etc. Rally of 10 Kms.
3. "Vramyaman Lokbijnan Mela" – 21st year.
4. Organising "Health-care Camps" at Sundarbans sponsored by Sundarban Tiger Reserve.
5. Campaign against superstition – Supernatural – all that happens are natural.
6. Street Drama.
7. Snake awareness program through puppet show.

8. "NO MORE DEATH DUE TO SNAKE BITE" – real snake show.
9. Rescue work for injured or trapped victims.
10. Document collection of death due to Snake-bite.
11. Setting up of stall at Ganga Sagar Mela. (8 years)
12. Invitation to the Hospital Staffs, examining and giving confidence program – Invited by the family members of the patients who died due to snake-bites.
13. Awareness about a particular medicine which is very effective regarding snake-bites are out of supply some times – That medicine being provided to 40 patients free of cost.
14. Program on snake awareness on TV and radio.
15. Book Published :- Snakes, Snake – awareness Poem, disentry, rabies, hydrophobia, ghosts, thunder & lightening etc.
16. Educational Sundarban Tour.
17. Adequate supply of AVS injections at Health Centres – Campaign and deputations.
18. "Life and death from thunder and lightening" - postering campaign and speech.

GOVERNMENT OF WEST BENGAL
Disaster Management Department
Writers's Buildings, Kolkata 700001

No. 1561(19)F.R./4P-3/04 Dt.19.8.2008

From: Joint Secretary to the Govt. of West Bengal.

Sub: Waiving of Post-mortem for payment of Ex-Gratia in case of death due to snake bite.

Sir,

As per the prevailing G.O. of this Department issued under No. 1773(40)=FR/RL/)/VIII/8P-2/90(Pt.I)Dt Kol-1, the 26th August 2002, post-mortem is mandatory for issuing sanction order of Ex-Gratia Grant to the next of kins of the persons, who had died due to natural calamities. Death due to snake bite / sun stroke was not included then.

Post-mortem report which is a sine qua non for being entitled to this grant, has been reported to be a very time consuming matter in case of death due to snake bite, as the government doctor who attends post-mortem, defers opinion as the cause of death in the Post-mortem Report and refers for visera report. This leads to inordinate delay which defeats the very purpose of payment of Ex-gratia Grant in those cases where the patient of snake bite was admitted into a government health centre/ hospital and where the attending government doctor issued a medical certificate mentioning that snake bite caused the death.

Satisfaction of the District Magistrate is important in this case. Circumstantial evidence like the medical report as mentioned above may be relied upon in absence of post mortem report. Accordingly, I am directed to inform you that where all other documents as mentioned in this Department's above mentioned G.O. have been furnished along with this medical report, the District Magistrates may sanction Ex-Gratia Grant with out pressing for post-mortem report on the basis of the medical certificate issued by the government doctor of the government health centre/hospital where the person concerned was admitted and treated before expiry.

Yours faithfully
(Joint Secretary)

GOVERNMENT OF WEST BENGAL
Disaster Management Department
Writers's Buildings, Kolkata 700001

No. 1362(40)F.R./4P-3/04 Dt.21 July.2008

From: Shri D. Pal, IAS
Joint Secretary to the Govt. of West Bengal.
To
1. District Magistrate, South 24 Parganas
2. Director of Relief, West Bengal
3. Commissioner of Presidency/Burdwan/Jalpaiguri Division
4. Sabhadhipati Zilla Parishad

Sub: Enhancement of rate in paying Ex-gratia Grant to the legal heirs of the deceased persons died due to Natural Calamities and Accidental Fire.

Sir,

In modification of this Department Order No. 1667(40)-FR dt. 28.9.2006, I am directed to say that the Governor has been pleased to sanction enhancement of the rate in paying Ex-gratia Grant to the Next of kin(s) of the deceased persons died due to Natural Calamities to the tune of Rs. 1,00,1000.00 (Rupees One lakh) only per death case in place of Rs. 50,000/- (Rupees Fifty thousand) only.

This has concurrence ofd the Finance Department vide their U/O No. Group N/0667 dt. 15.07.2008.

The Accountant General, West Bengal is being informed.

This order will take effect from the date of its issue.

Yours faithfully
Joint Secretary

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