

Magnitude of Snake Bite and Drowning During Monsoon Flood in Two Districts of Bangladesh

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Abstract

Background: Snake bite and drowning is very common during the season of monsoon flood. **Objective:** The purpose of the present study was to see the magnitude of snake bite and drowning during monsoon flood season in two districts of Bangladesh. **Methodology:** This cross sectional study was conducted from May 2012 to October 2012 in the most commonly flood affected districts of Bangladesh which were Sirajgonj and Pabna. All the people living in these two districts were selected as study population. Data regarding snake bite and drowning were collected from existing health facilities at Upazila Health Complexes, district hospital, private hospitals, print media like local and national newspapers, Medical College Hospitals and police station. **Result:** A total number of 9 Upazila in Sirajgonj District and another 9 upazila in Pabna district were included in this study. In Sirajgonj district drowning reported were in 140 cases and snake bite was in 49 cases. Furthermore, among 49 cases of snake bite death was occurred in 7(14.3%) cases in Sirajgonj District. Interestingly Shahzadpur, Sirajgonj sadar and Ullapara were the most common reported Upazila for drowning cases which were 38(27.1%) cases, 21(15.0%) cases and 20(14.3%) cases respectively. However, among these high prone drowning area, snake bite is reported less commonly and Kazipur was the highest reported area for snake bite which was 25(51.0%) cases. On the other hand, Pabna district drowning reported cases were in 58 and snake bite was in 62 cases. Furthermore, among 62 cases of snake bite death was occurred in 17(27.4%) cases. Sujanagar, Bera and Faridpur were the most common reported area for drowning which were 11, 10 and 9 cases respectively. However, Chatmohar was the most commonly reported by snake bite which was 20(32.3%) cases. **Conclusion:** Drowning is more commonly occurred in Sirajgonj district than Pabna. However, Pabna district is found a snake bite prone area. [J Shaheed Suhrawardy Med Coll, June 2015 ;7(1):3-5]

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Introduction

Bangladesh is flood prone county. Flood has had an impact on society from time immemorial and they represent neither a new nor a recent phenomenon in Bangladesh¹. Bangladesh lies approximately between 20°30 and 92°40 east longitude. Bangladesh occupies one of the biggest deltas in the world and has an area of about 147570 Sq km. It enjoys subtropical monsoon climate and experience annual average 2300mm precipitation, varying from a little as 1200 mm in the west to over 5000 mm in the east. There are two distinct seasons, a

dry season from November to April and the wet (flood) season from June to September. There are three mighty rivers, Brahmaputra, Ganges and Meghna enter Bangladesh from India through the north west and northeast or the country respectively.

Snake bite and drowning have significant effect on morbidity and mortality during monsoon flood. It has been reported that 5 million snake bite cases occur worldwide every year, causing about 100,000 deaths¹. In Bangladesh adequate data

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is not available due to lack of systematic record keeping system, lack of information and awareness at community level. An epidemiological study estimated the incidence of snake bites in Bangladesh about 8000 per year with 22% mortality² which has been identified to be one of the highest in the world. Bangladesh supports approximately 80 species of snakes³⁻⁶. Among them only few are venomous. These are Cobra, Krait, Russel's viper, Saw scaled viper, green snakes, sea snakes. Most bites are occurred by non-poisonous snakes and as many as 40% bites inflicted by venomous snakes do not produce signs of envenoming. Bites usually result from an unfortunate accidental interaction between a snake and a human victim. It occurs mostly when the people are at work like cultivation, gardening, plantation, wood collection, watching the crops even during walking. However bites are fairly common when victims are at sleep. Snake bite is a horrifying experience for the victim. The main stay of management is anti-snake venom which although effective, can cause anaphylaxis. So at primary level hospital, it is usually withheld despite indication for possible danger which is easy to manage with proper approach⁷⁻⁸. Only supportive treatment including tetanus prophylaxis and assurance is sufficient for non-poisonous bites. The interval between the bite and death is <6 hours in most cases⁹. Therefore, delay in diagnosis and treatment causes' fatality. In flood prone Bangladesh drowning is the single leading cause of death among children aged 1-17 years. Having overtaken pneumonia and diarrhea³. The Bangladesh health and injury survey 2003 marked a clear seasonal pattern for drowning. The death rate rises steeply during the summer monsoon season when rainfall is high and shallow ditches a natural hold are frequently filled with flood water. BHIS reported 17000 children drown annually in Bangladesh, an average of about 46 each day and about four times this number nearly drowns- over 68000 cases of near drowning a year. But there is no study report on drowning monsoon flood in Bangladesh. The purpose of the present study was to see the magnitude of drowning and snakebite during flood in selected districts in Bangladesh.

Methodology

This was a descriptive type of cross sectional study which was conducted with duration of six month from May 2012 to October 2012. The most commonly flood affected districts of Bangladesh are Shirajgonj and Pabna and these two districts are officially declared as flood affected; therefore these two districts were selected for this study. All the people living in these two districts were selected as study population. Data regarding snake bite and drowning were collected from existing health facilities at Upazila Health Complexes, district hospital, private hospitals, print media like local and national newspapers, Medical College Hospitals and police station. Designated research assistants collected the data on a daily basis. Face to face interview with victim or close relative were taken. A copy of the printed media was preserved for those reports collected from health facilities or media. Predesigned case record forms were used for this.

Data were scrutinized and were cross-checked to avoid duplication. All the data were kept confidential and results were published without disclosing the identity. As this study only were collected the data of a natural event, this was not needed formal ethical clearance. For those being interviewed individually they were informed about the study and their verbal consent was taken.

Results

A total number of 9 Upazila in Sirajgonj District and another 9 upazila in Pabna district were included in this study. In Sirajgonj district drowning reported were in 140 cases and snake bite was in 49 cases. Furthermore, among 49 cases of snake bite death was occurred in 7(14.3%) cases in Sirajgonj District.

Table 1: Distribution of Drowning Cases in Study Area (n=198)

District	Frequency	Percentage
Sirajgonj	140	70.7
Pabna	58	29.3
Total	198	100.0

Interestingly Shahzadpur, Shirajgonj sadar and Ullapara were the most common reported Upazila for drowning cases which were 38(27.1%) cases, 21(15.0%) cases and 20(14.3%) cases respectively. However, among these high prone drowning area, snake bite is reported less commonly and Kazipur was the highest reported area for snake bite which was 25(51.0%) cases. On the other hand, Pabna district drowning reported cases were in 58 and snake bite was in 62 cases. Furthermore, among 62 cases of snake bite death was occurred in 17(27.4%) cases. Sujanagar, Bera and Faridpur were the most common reported area for drowning which were 11, 10 and 9 cases respectively. However, Chatmohar was the most commonly reported by snake bite which was 20(32.3%) cases.

Table 2: Distribution of Snake Bite Cases in Study Area (n=111)

District	Death	Alive	Total
Sirajgonj	7(14.3%)	42(85.7%)	49(100.0%)
Pabna	17(27.4%)	45(72.6%)	62(100.0%)
Total	24(21.6%)	87(78.4%)	111(100.0%)

In Sirajgonj district, drowning was more occurred than snake a bite case which was 140(74.1%) cases and 49(25.9%) cases respectively. Conversely, in Pabna district, snake bite was more occurred than drowning which were 62(51.7%) cases and 58(48.3%) cases respectively. It is interesting that the most drowning prone area, snake bite was less commonly happened.

Discussion

Snake bite is another major case of mortality and morbidity in the rural tropic⁴. It is significantly neglected public health problem all over the world as well as in Bangladesh. Global snake bite incidence has been estimated as 500,000 and mortality between 30,000-40,000 per year⁵. Chippaix estimated that venomous snake

causes 5.4 million bite, approximately 2.5 million envenoming and over 125000 death worldwide annually⁶.

Table 3: Comparison of Drowning and Snake Bite Cases in Study Area (n=309)

District	Drowning	Snake Bite	Total
Sirajgonj	140(74.1%)	49(25.9%)	189(100.0%)
Pabna	58(48.3%)	62(51.7%)	120(100.0%)
Total	198(64.1%)	111(35.9%)	309(100.0%)

White estimated more than three million bite per year resulting in more than 150,000 death⁷, More recently Anuradhani et al reported that globally at least 421000 envenoming occurs annually, but this may be as high as 1841000⁸. Recently Rahman et al⁴ reported the incidence of snake bite episodes is 623.4 bite per 100000 person years. The highest incidence was found in Barisal division (2667.7) and the lowest found in sylhet division (321.6)⁹. The incidence of snake bite rises to a great deal during flood which may be attributed to increased exposition on reduced dry land surface, victims being often outdoor at night and being during peak activity period and due to difficulty reaching health care facility.

The intervention and treatment for these two ailments are fairly simple and more importantly very cost effective. The provision of necessary logistics can save numbers of human lives. The knowledge of the actual magnitude of this problem is very important for preparing any disaster management plan. This actual magnitude of this problem is very important for preparing any disaster management plan. This will help the authority to prioritize mobilization of necessary and appropriate logistics and man power. We plan a study to document the cases of drowning and snake bite in one / twofold affected districts (s) of Bangladesh during the flood season of 2012 (may to October) to document and describe the magnitude of the problem.

A total number of 9 Upazila in Sirajgonj District and another 9 upazila in Pabna district were included in this study. In Sirajgonj district drowning reported were in 140 cases and snake bite was in 49 cases. Furthermore, among 49 cases of snake bite death was occurred in 7(14.3%) cases in Sirajgonj District. Interestingly Shahzadpur, Shirajgonj sadar and Ullapara were the most common reported Upazila for drowning cases which were 38(27.1%) cases, 21(15.0%) cases and 20(14.3%) cases respectively. However, among these high prone drowning area, snake bite is reported less commonly

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Conclusion

This present study permits to conclude that drowning is more commonly occurred in Sirajgonj district than Pabna. However, Pabna district is found a snake bite prone area. Furthermore, death rate due to snake bite cases is less in both study places.

References

1. Md. Monirul Islam and Kimmiteru Sado. Development of hazard maps of Bangladesh using NOAA-AVHRR images with GIS, Hydrological sciences Journal-des Science Hydrologiques, 45(3) June 2000
2. Bangla Pedia, National encyclopedia of Bangladesh, 2006.
3. IRIN, a service of the UN office for the Humanitarian Affairs, 23 April 2012.
4. Ridwanur Rahman, M. Abul Faiz, Shahjada Selim, Bayzidur Rahman, Ariful Basher, Alison Jones, Catherine d' Este, Moazzem Hossain, Ziaul Islam, Habib Ahmed, Abul Hasnat Milton.
5. Baqui AH, Black RE, Arifeen SE, Hill K, Mitra SN, al Sabir A. Causes of childhood deaths in Bangladesh: results of a nation-wid verbal autopsy study. Dhaka: International Centre for Diarrhea Disease Research, Bangladesh, 1997. 43 p. (ICDDR, B special publication no.60).
6. MT Miah, AA Hoque, BK Tarafer, MKH Patwary, RR Khan, SMEJ Kabir. Epidemiology, clinical profile and outcome of patients of snake bite in Mymensingh medical college hospital. Journal of Bangladesh College of Physicians and Surgeons. Vol. 27, No.2, May 2009.
7. Pandey DP. Epidemiology of snake bites bases on hospital survey in Chitwan and Nawalparasi districts, Nepal. Journal of Nepal Health Research council Vol. 4 No.2 October
8. Jamaiah I, Rohela M, roshalina R and Undan RC. Prevalence of snake bites in kangar district hospital, Perlis, west Malaysia: A retrospective study (January 1999–December 2000), Southeast Asian J Trop Med Public Health.
9. Chippaux JP (1998) snakebites: appraisal of the global situation bulletin of the world health organization 76: 515-524.
10. Flood control room DGHS, Bangladesh, September 10, 2007.