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Clinical Profile, Species-Specific Severity Grading and Outcome Determinants of Snake Envenomation

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ABSTRACT

Snake envenomation is a critical medical emergency cause severe systemic effects as well as tissue destruction. It poses health hazards in rural and urban settings, particularly in tropical climates and is a major cause of death in economically active individuals. This study aims to assess snake bite clinical characteristics, categorize severity and identify treatment factors. It analyzes various snake envenomation to improve treatment protocols and optimize medications. The ultimate goal is to reduce morbidity and mortality, optimize healthcare resources and improve public health initiatives. This research enhances understanding of snake-human relationships, providing valuable insights for clinical practices and public health strategies. The investigation examined by 41 patients hospitalized to SHRI B. M. Patil Medical College, Hospital and Research Center, Karnataka, having a history of snakebite or envenomation and monitored their condition throughout the first 24 hours. Patient profiles and examination results are available. Snakebite incidences are primarily among individuals aged 20-29, with farms being the primary location. 56.1% of cases are attributed to viper snake bites. 90% of bitten individuals do not use traditional remedies. Antivenom is the primary treatment, administered within 6 hours. However, delays persist. Public health campaigns should promote prompt medical attention and ensure healthcare availability. Coagulopathy seen in 34.1% patients, Anti-Snake Venom (ASV) delivery intervals vary, with shorter durations resulting in lower fatality rates. The study found that preliminary consultation byusual healers, a delay in delivery of ASV, in addition to krait bites are key factors in snake envenomation cases. Grade IV severity cases are primarily caused by hemotoxic viper snakebites. Immediate medical treatment can reduce illness and death rates.

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Key Words
WBCT, APTT, ASV, CBC, RFT, LFT, INR

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INTRODUCTION

Throughout history, Indians have revered snakes. Indian temples often depict snake-shaped deities. They are admired and venerated due to their formidable appearances and capacity to inflict damage. Many Indians observe festivals that are dedicated to snake deities, such as Nagar Panchami. The statistics on snake bite incidence and its consequences do not often fully encapsulate the scope of the issue. A considerable number of individuals bitten by snakes utilize antiquated or conventional therapeutic procedures, which consistently jeopardizes their life[1]. Hence, the utilization of antivenom treatment in conjunction with hospitalization and vigilant monitoring to promptly detect signs of poisonous snake bites will contribute to reducing mortality and morbidity rates associated with such incidents[2]. The majority of snakebites are harmless and stem from non-venomous species. Out of 3,000 snake species, roughly 450 are classified as internationally hazardous to humans. India is home to 216 snake species, 52 of which are venomous and potentially dangerous[3,4]. There are four major venomous species, they are cobras, kraits, Russell's vipers and saw-scaled vipers[5]. The World Health Organization (WHO) has recognized snakebite as a critical and neglected public health concern in rural areas of tropical and subtropical nations in Asia, Africa, Oceania and Latin America[6]. Research by the World Health Organization (WHO) reveals that the annual global incidence of envenoming varies from 421,000-1,841,000, with mortality ranging from 20,000- 94,000. Additionally, areas with the greatest incidence of snakebites include South Asia, Southeast Asia and sub-Saharan Africa. India has the highest mortality rate from snakebites, with annual occurrences between 13,000 and 50,000[7,8]. The elevated mortality rate from snakebites can be ascribed to multiple factors, including the limited availability of anti-snake venoms (ASV), challenges in swiftly accessing healthcare facilities, inadequate health services and reliance on traditional medicines[9,10]. Moreover, an erroneous identification of the snake species may result in suboptimal treatment and adverse consequences. In a presentation, the prompt diagnosis and management of a snakebite victim can be enhanced by distinctly outlining and separating the clinical signs of snakebites through the analysis of a series of correctly identified bites. Consequently, we conducted this study to examine the clinical features and prognostic variables of various snake bites. Moreover, our objective was to categorize the severity of various cases using a scale that integrates specific clinical and laboratory data for each snake species. Snake envenomation constitutes a severe medical emergency, leading to injuries that can range from localized tissue destruction to the dysfunction of nearly all essential organs. The World Health Organization (WHO) has recognized snake bites as a neglected yet significant public health concern in rural areas of tropical and subtropical nations in Asia, Africa, Oceania and Latin America. From a clinical and toxicological perspective, snake envenomation can be classified into three syndromes: hemotoxic, neurotoxic and myotoxic. Of the 216 snake species identified in India, 52 exhibit poisonous characteristics. Four principal venomous species exist: cobras, kraits, Russell's vipers and saw-scaled vipers[11].

MATERIALS AND METHODS

Data is gathered from patients who meet the inclusion criteria, which include a documented history of venomous snake bite, as determined through historical records, clinical examinations, and laboratory tests. The data is collected from the patients attending the casualty department at Shri B M Patil Medical College Hospital and Research Center in Vijayapura. Patients who have been bitten by snakes are classified depending on the severity of their condition, which is determined by particular characteristics of the snake species and assessed through clinical and laboratory measurements. Factors that influence the outcome of the patients are examined.

Inclusion and Exclusion Criteria: Patients with venomous snake bites or those with an unidentified bite medical record but exhibiting symptoms consistent with snake bite poisoning. This Exclusion criteria includes non-venomous snake bites, venomous bites other than snakes and dry bites.

Statistical Analysis: The research employs Microsoft Excel for data documentation and SPSS for statistical evaluation. The results include graphical representations, numerical counts, percentages, arithmetic mean and standard deviation. The differences between two groups are assessed using an independent sample t-test. The Mann-Whitney U test is employed for variables that do not follow a normal distribution. Fisher's exact test or Chi-square tests are utilized for categorical variables. ANOVA is employed in situations involving several groups. A p-value below 0.05 indicates statistical significance. The data will be analyzed using statistical software including SPSS, Stata and R. Descriptive statistics will be employed to summarize exposure and demographic data. The evaluation of categorical variables will be conducted using either Fisher's exact test or the Chi-square test. The Mann-Whitney U test or independent t-tests will be employed for continuous variables. The logistic regression model will be employed to identify the factors associated with complications and mortality. Furthermore, we will employ Kaplan-Meier survival analysis to assess survival probabilities. The study seeks to elucidate the elements influencing the duration of event outcomes.

RESULTS AND DISCUSSIONS

The 20-29 age groups have the largest sample, accounting for 34.1%, followed by 50-59 at 22%. The population is divided into various age categories, including those under 20, 30-40, 50-69 and 70+, each representing a smaller fraction of the population as tabulated in (Table 1).

Table 1: Gender Wise Analysis

AGE	Frequency	Percent
< 20	3	7.3
20 - 29	14	34.1
30 - 39	6	14.6
40 - 49	5	12.2
50 - 59	9	22
60 - 69	1	2.4
70+	3	7.3
Total	41	100

The study reveals a gender distribution with 20 females and 21 males, with a small male predominance. The lower and upper limbs are the most often impacted regions, with 48.8% and 41.5% of snakebite occurrences, respectively. Facial and abdominal bites are less prevalent. The majority of snakebite incidents occur between 6:00 PM and 12:00 AM, with 27% occurring between 12:00 AM and 6:00 AM. The morning hours have the lowest occurrence rate, accounting for only 12%. The data is valuable for healthcare practitioners, public health officials and communities for strategic planning and resource allocation for snakebite management. Snakebite incidents are primarily found on farms, accounting for 54% of all incidents, primarily due to the prevalence of snakes in rural and agricultural areas. Residences are the second most frequent site, accounting for 37% of snakebites. Mills, playgrounds and schools/colleges have a relatively low occurrence, accounting for 5%, 2% and 2% of incidents respectively. These sites have a lower probability of seeing snakes due to their nature and ambient conditions. Viper snake bites with haemotoxic effects are the predominant type, accounting for 56.1% of all reported cases. Cobra bites, neurotoxic, are the second most common type, accounting for 34.1% of all instances. Kraits, the least frequent neurotoxic type, account for only 9.8% of all reported cases. The data highlights the importance of healthcare providers allocating resources and establishing treatment guidelines for the most prevalent snakebite cases. Public health programs should prioritize increasing knowledge about the dangers and proper actions to take in response to venomous snake bites, thereby reducing the occurrence of snakebite incidents and improving outcomes for affected individuals. Approximately 90% of snakebite sufferers did not utilize traditional cures and presumably chose current medical treatment, reflecting a preference for modern medical intervention. Merely 10% of victims utilized conventional therapy, potentially attributable to cultural practices or restricted access to contemporary services. This indicates that the majority of those bitten by snakes depend on contemporary medical therapy for effective recovery. Sixty-one percent of snakebite victims received antive nom within six hours, being the predominant group. Timely reaction is essential for effective treatment and improving patient outcomes. Public health campaigns must underscore the significance of timely medical intervention and guarantee the availability of healthcare facilities. Bite to Injection Time is a critical element in snakebite treatment, as a considerable proportion of cases encounter delays. Public health initiatives must focus improving the timeliness and accessibility of healthcare services for people with snake bites. A medical examination assessing coagulation time is also essential. A substantial majority of snakebite patients did not require mechanical ventilation, suggesting that most cases could have been managed without severe intervention. Nonetheless, 26.8% of cases necessitated mechanical ventilation, signifying that more than 25% of instances required it due to the severity of the venomous assault. Public health policies must prioritize the provision of facilities equipped with mechanical ventilation and guarantee that healthcare personnel are sufficiently educated to handle severe snakebite incidents. The majority of snakebite patients did not exhibit coagulopathy, indicating that the bite did not substantially affect blood coagulation. Nonetheless, 34.1% of cases had coagulopathy, complicating therapy and recovery. Public health policy and clinical practices must prioritize the monitoring and management of coagulopathy in snakebite patients to reduce the risk of catastrophic outcomes and enhance patient care. Of the 41 patients, 24% were diagnosed with cellulitis, impacting 25% of the cohort. Seventy-six percent do not have cellulitis, indicating its low prevalence within this cohort. This information can assist healthcare practitioners in comprehending the prevalence of celluloids within this patient cohort and guiding further medical evaluation and resource allocation. The data set includes 41 patients categorized into four severity groups based on their specific disorders. Severity rating 3 is the most common, representing 32% of cases. Grades 2 and 4 comprise 59% of the instances. Anaphylaxis to Anti-Snake Venom (ASV) is uncommon, occurring in about 5% of patients. The patient age distribution ranges from 16 to 77 years, with a mean age of 38.29 years and a standard deviation of 16.591 years. The duration between a snake bite and the administration of antivenom varies from 0.5-34 hours, with a mean of 9.488 hours and a standard deviation of 9.5991 hours. The delivery range of ASV vials is from 6 to 40, with a mean of 22.39 vials and a standard deviation of 8.449 vials. The duration of hospital stays ranges from 1-27 days, demonstrating significant variability in recovery times among patients, as

Table 2: Descriptive Statistical Analysis of Different Parameters

Descriptive Statistics	N	Minimum	Maximum	Mean	Std. Deviation
AGE	41	16	77	38.29	16.591
BITE TO NEEDLE TIME [hours]	41	0.5	34	9.488	9.5991
ASV[vials]	41	6	40	22.39	8.449
Hospital stay[days]	41	1	27	8.1	6.576

Table 3: Bite to Needle Time [Hours] Vs Mortality

Bite to Needle Time [hours]		Mortality			
		No	Yes	Total	p-value
<=6.0	Count	25	0	25	0.046
	% within Mortality	65.80%	0.00%	61.00%	
6.1 - 24.0	Count	10	2	12	
	% within Mortality	26.30%	66.70%	29.30%	
24.1+	Count	3	1	4	
	% within Mortality	7.90%	33.30%	9.80%	
Total	Count	38	3	41	
	% within Mortality	100.00%	100.00%	100.00%	

Table 4: Comparison Between the SSS Grading and Average no of ASV

Species-Specific Severity Grading	Frequency	Average no of ASV[vials]	p-value
Grade 1	5	10.2	< 0.001
Grade 2	12	18.75	
Grade 3	13	23.85	
Grade 4	11	30.18	
Total	41	22.39	

Table 5 Comparison of SSS Grading vs. Average Hospital Stay

Species-Specific Severity Grading	Frequency	Average Hospital Stay	p-value
Grade 1	5	4.2	0.004
Grade 2	12	5.17	
Grade 3	13	6.92	
Grade 4	11	14.45	
Total	41	8.1	

Table 6: Comparison between the SSS Grading and Mortality

Species-Specific Severity Grading		Mortality			
		No	Yes	Grand Total	p-value
Grade 1	No of Patients	5	0	5	< 0.001
	% within Mortality	13.20%	0.00%	11.90%	
Grade 2	No of Patients	12	0	12	
	% within Mortality	31.60%	0.00%	28.60%	
Grade 3	No of Patients	13	0	13	
	% within Mortality	34.20%	0.00%	31.00%	
Grade 4	No of Patients	8	3	11	
	% within Mortality	21.10%	100.00%	26.20%	
Total	No of Patients	38	3	41	
	% within Mortality	100.00%	100.00%	100.00%	

Table 7: Comparison Between the Species and Average No of Vials

Species	Frequency	Average no of ASV[vials]	p-value
Viper	23	24.17	0.072
Cobra	14	18.57	
Krait	4	25.5	
Total	41	22.39	

Table 8Comparison between the Species and Mortality

Species		Mortality		
		No	Yes	Total
Haemotoxic snake bite(viper)	Count	22	1	23
	% within MORTALITY	57.90%	33.30%	54.80%
Neurotoxic snake bite(cobra)	Count	14	0	14
	% within MORTALITY	36.80%	0.00%	33.30%
Neurotoxic snake bite(krait)	Count	2	2	4
	% within MORTALITY	5.30%	66.70%	9.50%
Total	Count	38	3	41
	% within MORTALITY	100.00%	100.00%	100.00%

Table 9: Traditional Treatment vs Average ASV

Traditional Treatment	Frequency	Average no of ASV [vials]
Yes	4	26.25
No	37	21.97

Table 10: Traditional Treatment vs Average Hospital Stay

Traditional Treatment	Frequency	Average Hospital stay[days]
Yes	4	12.75
No	37	7.59

Table 11: Traditional Treatment vs Mortality

Traditional Treatment		Mortality		
		No	Yes	Total
No	Count	35	2	37
	% within Mortality	92.10%	66.70%	88.10%
Yes	Count	3	1	4
	% within mortality	7.90%	33.30%	9.50%
Total	Count	38	3	41
	% within Mortality	100.00%	100.00%	100.00%

illustrated in (Table 2). A study identified a substantial correlation between bite-to-needle time and mortality rates in patients receiving ASV treatment. Of the 25 patients, 61% survived beyond 6.0 hours. Between 6.1 and 24.0 hours, 66.70% of patients died, accounting for 29.30% of the population. After 24.1+ hours, 33.30% of patients died, accounting for 9.80% of the sample. A shorter duration (less than or equal to 6 hours) was linked to decreased mortality rates, while longer durations (6.1 hours or more) were linked to greater mortality rates. This highlights the importance of timely ASV administration in reducing mortality rates as shown in (Table 3). The study reveals a correlation between the use of adaptive support ventilation (ASV) and the severity of the illness. Grade 1 patients necessitated a lesser average quantity of ASV vials, but Grade 2 patients averaged 18.75 vials. Patients classified as Grade 3 utilized an average of 23.85 vials, signifying an elevated consumption of ASV. Patients classified as Grade 4 utilized an average of 30.18 vials, signifying that the maximum ASV consumption aligns with the greatest need for ASV. These findings highlight the need of severity classification in determining the requisite dosage of ASV treatment. The research indicates that the quantity of ASV vials administered to patients correlates directly with the severity of their condition. Patients classified as Grade 1 received an average of 4.2 ASV vials, whereas those classified as Grade 2 received an average of 5.17 ASV vials. Patients classified as Grade 3 received an average of 6.92 ASV vials, whereas those classified as Grade 4 received an average of 14.45 ASV vials. The data indicates that the severity of instances is directly correlated with the quantity of ASV vials provided, revealing notable discrepancies in ASV usage across severity levels. The study found that 11.90% of patients in Grade 1 had no mortality, while 28.60% of Grade 2 patients experienced survival. None of the 13 Grade 3 patients died, accounting for 31.0% of the sample. However, out of 11 Grade 4 patients, 3 died, representing 26.2% of the sample. The low p-value of less than 0.001 indicates a strong statistical significance in the link between species-specific severity grading and mortality, indicating that variations in death rates within severity grades are significant and unlikely to have happened randomly. The study reveals that out of 23 patients bitten by Vipers, the average number of Anti-Snake Venom (ASV) vials given was 24.17, the highest among different animal groups. The average number of ASV vials supplied to 14 patients affected by Cobra bites was 18.57, lower than the incidence rate for Viper bites but higher than the overall average. Kraits patients received an average of 25.5 vials, the highest among different species groups. However, the p-value of 0.072 suggests these disparities lack statistical significance, suggesting that these variations may not be statistically significant. (Table 8) Comparison between the Species and Mortality. The study analyzed the mortality rates of patients bitten by various snakes as given in (table 8). The majority of patients, 57.90%, survived, accounting for 54.80% of the total sample. The majority of patients, 57.90%, died, resulting in a mortality rate of 33.30%. The majority of patients, 57.90%, survived, despite one patient dying. The majority of patients, 9.50%, died, resulting in a mortality rate of 66.70%. The data showed significant disparities in fatality rates based on the type of snake bite. The study highlights the importance of understanding the specific types of snake bites. The study indicated in table 9 that patients undergoing conventional treatment exhibited a reduced average ASV usage relative to those who did not receive such treatment. The mean number of ASV vials administered to individuals who did not receive standard treatment was 21.97, which is lower than the average intake for those who received conventional treatment. The disparity in ASV utilization may be attributed to factors such as the effectiveness of traditional therapy or the severity of the patients. The study indicated in table 10 that patients receiving conventional treatment experienced a greater average hospitalization length of 12.75 days relative to those who did not. This gap may be ascribed to causes including the severity of the cases, the effectiveness of traditional therapy, or the overall management of the patients' circumstances. Additional research may elucidate the reasons leading to the extended hospitalization time in individuals receiving conventional treatment. The study revealed that conventional treatment resulted in a 33% mortality rate among 3 individuals, suggesting potential hazards associated with its ineffectiveness or delayed medical intervention, whereas non-traditional treatment caused 3 fatalities in 8% of the 37 patients. The

research indicates a notable difference in mortality rates between patients who underwent standard treatment and those who did not. Conventional treatment had a greater mortality rate (33%) compared to 8% for those who did not undergo such therapy, indicating that conventional therapy may possess reduced efficacy or entail considerable dangers. In this study of 40 patients, the 20-29 age group has the largest sample, accounting for 34.1%, followed by 50-59 at 22%. The population is divided into various age categories, including those under 20, 30-40, 50-69 and 70+, each representing a smaller fraction of the population. The sample has a gender distribution of 20 females and 21 males, indicating an equitable representation of genders within the sample. This finding is consistent with studies by Monteiro (ratio of 1.38:1) and Kulkarni (ratio of 2.17:1)[12,13]. A study found that lower and upper limbs were the most commonly affected areas for snakebite incidents, accounting for 48.8% and 41.5% of cases respectively. Facial and abdominal bites were less prevalent, indicating that limbs are more susceptible to snakebite compared to other body regions. Based on the results of research by Saravu K, *et al.* showed a ratio of 3.48:1[14]. Because most of these incidences occur in the open, either at night on unintended stepping or when working in the fields, bites to the lower extremities are more prevalent than those to the upper ones. Snakebite incidents are primarily on farms, accounting for 54% of incidents, due to the prevalence of snakes in rural and agricultural areas. Residential areas are the second most frequent site, accounting for 37% of snakebite incidents. Mills, playgrounds and schools/colleges have a lower occurrence, accounting for 5%, 2% and 2% of incidents respectively. This data can help inform public health measures and educational activities to mitigate snakebite risks in high-risk areas. Enhanced awareness and proactive strategies could significantly reduce snakebite incidents. The investigation conducted by Saravu [14]. Snakebite incidences are primarily during the evening and night hours, specifically between 6:00 PM and midnight. This data is crucial for healthcare practitioners, public health officials and communities, as it helps in the strategic planning of preventative measures and resource allocation for snakebite management. Disseminating information about these high-risk periods can potentially decrease snakebite cases. This correlated with other studies done by Suchithra [14], Monteiro [12]. Around 90% of snakebite victims prefer modern medical treatment, while only 10% use traditional methods. This suggests a preference for modern care, which is crucial for efficient treatment and recovery. Public health campaigns should promote prompt medical attention and ensure accessible healthcare facilities, while educational initiatives should highlight potential risks associated with traditional treatments. Snakebite victims receive antivenom within 6 hours, with 61% receiving it within 6 hours. Prompt response is crucial for efficient therapy and patient outcomes. 29.3% received antivenom within 6. 1-24 hours, while 9.8% were administered longer. Procrastination can worsen the prognosis. Public health should prioritize enhancing healthcare services for snakebites victims, ensuring swift antivenom administration to minimize serious consequences. A medical test measures blood clotting time, is used to assess coagulation disorders or monitor anticoagulant therapy. 52.5% of 21 individuals showed clotting within the specified timeframe and 47.5% did not. Most snakebite patients, 73.2%, do not require mechanical ventilation, suggesting less serious cases can be treated without assistance. However, 26.8% require it, indicating over 25% of cases require significant medical attention. Public health policies should prioritize access to ventilating facilities and ensure healthcare staffs are trained to manage severe snakebite cases, enhancing patient outcomes and reducing mortality rates. The dataset shows varying severity levels across different grades of 41 patients with specific diseases. Grade 3 is the most prevalent, accounting for 32% of cases, followed by Grade 2 and Grade 4. Grades 3 and 4 account for 59% of cases. The study reveals that anaphylaxis to ASV is a rare event, impacting only 5% of the 41 patients, and the majority, 95%, has not experienced it. This information is crucial for healthcare providers to evaluate ASV administration safety and monitor patients for potential adverse reactions. This correlated with other studies done Kulkarni M Et. al Sharma N, Adhisivam[14]. The study reveals that the majority of snakebite incidents occur in the 20-29 age range, with 34.1% of the population aged 20-29. The majority of bites occur between 6:00 PM and 12:00 AM, with the morning time being the least frequent. The most common types of bites are viper snake bites with haemotoxic effects, cobra bites and Kraits. Approximately 90% of snakebite sufferers do not utilize traditional remedies and likely opt for contemporary medical therapy. Public health campaigns should continue advocating for timely seeking medical attention and ensuring accessible healthcare facilities. Antivenom is the most common type of bite, with 61% of victims receiving it within 6 hours after being bitten. Whole blood clotting time is a significant concern, with 73.2% of snakebite patients not needing mechanical ventilation. Public health policies should prioritize the accessibility of facilities equipped with mechanical ventilation and ensure healthcare staffs are adequately trained to manage severe snakebite cases. Coagulopathy is a significant concern., with 65.9% of snakebite patients not experiencing it.Cellulitis affects

a significant proportion of the patient group, with 76% unaffected. The research examines the delivery of Anti-Snake Venom (ASV) to 41 individuals, with 95% not experiencing anaphylaxis as a reaction to ASV. The interval between a snake bite and the administration of antivenom varies considerably, with a mean of 9.488 hours and a standard deviation of 9.5991 hours.

CONCLUSION

The study reveals that the majority of snakebite incidents occur in the 20-29 age range, with 34.1% of the population aged 20-29. The majority of bites occur between 6:00 PM and 12:00 AM, with the morning time being the least frequent. The most common types of bites are viper snake bites with haemotoxic effects, cobra bites and Kraits. Approximately 90% of snakebite sufferers do not utilize traditional remedies and likely opt for contemporary medical therapy. Public health campaigns should continue advocating for timely seeking medical attention and ensuring accessible healthcare facilities. Antivenom is the most common type of bite, with 61% of victims receiving it within 6 hours after being bitten. Whole blood clotting time is a significant concern, with 73.2% of snakebite patients not needing mechanical ventilation. Public health policies should prioritize the accessibility of facilities equipped with mechanical ventilation and ensure healthcare staff are adequately trained to manage severe snakebite cases. Coagulopathy is a significant concern, with 65.9% of snakebite patients not experiencing it. Cellulitis affects a significant proportion of the patient group, with 76% unaffected. The study focuses on the administration of Anti-Snake Venom (ASV) to 41 patients, with 95% having not encountered anaphylaxis in response to ASV. The bite-to-needle time between a snake bite and the administration of ASV varies significantly, with an average of 9.488 hours and a standard deviation of 9.5991 hours. The study emphasizes the necessity of prompt ASV administration and the critical role of severity grading in establishing the appropriate dosage of ASV treatment. The research additionally investigates the variation in mortality rates according to the particular type of snake bite. The study highlights the importance of timely ASV administration and the significance of severity grading in determining the required dosage of ASV treatment. The study also examines the difference in fatality rates based on the specific type of snake bite.

REFERENCES

1. Simpson, I.D. and R.L. Norris, 2007. Snakes of Medical Importance in India: Is the Concept of the “Big 4” Still Relevant and Useful??. Wilderness and Environ. Med., 18: 2-9.
2. Gold, B.S., R.C. Dart and R.A. Barish, 2002. Bites of Venomous Snakes. New Engl. J. Med., 347: 347-356.
3. Bawaskar, H.S., 2004. “Snake venoms and antivenoms”, Critical supply issues. J Assoc Physicians India., 52: 14-17.
4. Meenatchisundaram, S., G. Parameswari, A. Michael and S. Ramalingam., 2008. “Neutralization of the pharmacological effects of Cobra and Krait venoms”, by chicken egg yolk antibodies. Toxicon., 52: 221-227.
5. W.H.O., 2012. Neglected tropical diseases: Snakebite.
6. Alirol, E., S.K. Sharma, H.S. Bawaskar, U. Kuch and F. Chappuis, 2010. Snake Bite in South asia: A Review. PLoS Neglected Trop. Dis., Vol. 4, No. 1 .10.1371/journal.pntd.0000603.
7. Warrell, D.A., 2010. Snake bite. The Lancet, 375: 77-88.
8. Narvencar. K., 2006. Correlation between timing of ASV administration and complications in snake bites. J Assoc Physicians India., 54: 717-719.
9. Paul, V., s. Pratibha, K.A. Prahlad, J. Earali, S. Francis and F. Lewis., 2004. “High dose anti snake venom versus low dose anti snake venom in the treatment of poisonous snake bites a critical study”, J Assoc Physicians India., 52: 14-17.
10. Kumar, R., V. Somavarapu and A.B. Shastry, 2012. Clinical profile, species-specific severity grading, and outcome determinants of snake envenomation: An Indian tertiary care hospital-based prospective study. Indian J. Crit. Care Med., Vol. 16 .10.4103/0972-5229.106499
11. Monteiro, F.N., T. Kanchan, P. Bhagavath, G.P. Kumar, R.G. Menezes and K. Yoganarasimha., 2012. Clinico-epidemiological features of viper bite envenomation: a study from Manipal, South India. Singapore Med J., 53: 203-207.
12. Kulkarni, M.L. and S. Anees., 1994. Snakevenompoisoning: experience with 633 cases. Indian Pediatr., 31: 1239-1243.
13. Suchithra, N., J.M. Pappachan and P. Sujathan, 2008. Snakebite envenoming in Kerala, South India: Clinical profile and factors involved in adverse outcomes. Emergency Med. J., 25: 200-204.