

The Incidence of Skin Allergy Testing Antivenom and its Related Factors in Behbahan

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ABSTRACT

Introduction: Immunotherapy is the only treatment of scorpion sting antidote is immune from severe scorpion sting is an effective treatment for horses. Anaphylaxis is a life-threatening adverse reaction to antidote and is a major concern in the use of antidote is usually the symptoms of wheezing, itching, hives secretion, bronchospasm, hypotension, bradycardia, myocardial infarction, and cyanosis. Since research has been done in this regard, the study investigated the incidence of skin allergy testing antivenom and its related factors in Behbahan.

Materials and Methods: This study was a cross-sectional study was approved by the Review questionnaire of the Ministry of Health on Scorpion patients in the Disease Control and Prevention Center of Shahidzadeh Hospital in Behbahan was conducted from 2007 to 2017. The required data through a data entry form includes information such as age, sex, sensitivity Whether or not the antidote, the time of the bite history, admission, location of the bite, location, and type of Scorpio, were collected from patients' records. Data using statistical software spss version 18 and descriptive statistics were analyzed and binomial test.

Results: In this study over 10 years, 184 cases were observed with antivenom allergy. Of these, 83 (45.1%) were male and the rest female. Also, 64.1 percent of rural residents and settlers, maximum bite in the upper extremities (with 21.7 percent). Most allergies in the early hours of the morning sting 35.3 percent (6-0 am), respectively. 29-20year age group had the highest sensitivity to antibiotics by 29 percent. In the spring with 57.01%and winter by 06.5 percent were the most and least sensitive to the antivenom. In the meantime, the sting to admit was 435.92 minutes. People who are not sensitive in the meantime was 370.07 minutes, there was a significant difference between the two groups ($p= 0.016$).

Conclusions: Due to the high prevalence of antivenom allergy in the spring, warm months and those living in rural areas seem these factors play an important role in increasing susceptibility to antidote. And to reduce the number of sensitivity and its complications due to these cases is necessary.

Keywords: Scorpion Sting, Antivenom Allergy, Sting.

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Introduction

Scorpion sting is one of the major health problems in many tropical countries, especially Iran, and is one of the major health problems in the southern regions of the country and Khuzestan.^{1,2}

The highest number of scorpion stings was related to the hands and feet and occurred mostly in summer and most of the patients lived in rural areas.³ One of the clinical symptoms of scorpion sting before injection of antidote is severe local pain in 100% of patients. Also, other symptoms such as fatigue, tachycardia, abdominal pain, bradycardia, cyanosis, vomiting, hoarseness, hyperthermia, etc. may be bitten in individuals. To be seen by a scorpion.⁴ Scorpion venom has a high rate of absorption and distribution in the tissue, so the antibody should be injected into the patient as soon as possible.⁵

Immunotherapy is the only way to treat scorpion stings.¹ Treatment improves many of the complications as close as possible to the time of the bite.⁶ Anti-scorpion A number of scorpion bite symptoms (such as local pain, vomiting) are reduced 1 hour after the start of the injection.⁵ Today, antibodies derived from equine immunity are an effective treatment for severe scorpion stings.⁷

Adverse reactions to anti-scorpion antibodies, which fall into two categories: immediate and delayed. The delayed reaction is approximately 5 to 24 days after receiving the antibody, which includes fever, lymph node disease, wheezing, proteinuria, itching

and burning, joint pain, and neuropathy.⁸ They showed a percentage of anti-venom susceptibility and 90% of them were in the age group of 18-50 years. There has also been a case of death in a 12-year-old boy in Saudi Arabia after receiving an antidote due to pulmonary edema, hematomas, and circulatory failure.⁹

Due to the importance of the study and also that no study has been done in this regard, this study or the purpose of investigating the prevalence of skin allergies to scorpion antidote test and its related factors was conducted in Behbahan.

Materials and Methods

The present study is a descriptive-analytical study that was performed by examining the information questionnaire of scorpion patients approved by the Ministry of Health in the vaccination unit of Behbahan Shahidzadeh Hospital from 2007 to 2017. Requirements were collected through an information registration form that included information on age, sex, sensitivity or non-susceptibility to the antidote, time and date of the bite, time of referral, location of the bite, location and type of scorpion. Patients complaining of scorpion stings were first tested for antidote sensitivity. In this way, 10 units (with insulin syringe) of the antidote were injected intradermally into the forearm area and about half an hour later, the presence or absence of sensitivity to the antidote was assessed. This multidimensional immunoglobulin was made by Razi Vaccine

and Serum Research Institute and against 6 important and dangerous species of Iran: *Undertonuskrasikoda* (black scorpion), *Buttuscelsi* (black-tailed scorpion), *Buttus horn* (feathered black scorpion), *Odentobusdoria* (yellow scorpion), *Is Mesobotusepetus* (yellow scorpion), *Hemiscorpiusleptorus* (Gadim). Inclusion criteria include not having autoimmune diseases and diabetes, not receiving immunosuppressive drugs and corticosteroids.

The criteria for diagnosing allergies are i-Data were analyzed using SPSS software version 18 and descriptive statistics and binomial statistical test. ngestion of more than 5 mm, itching, redness, and swelling beyond the range of antidote injection on the patient's

forearm. No antidote was injected if the patient was allergic.

Data were analyzed using SPSS software version 18 and descriptive statistics and binomial statistical test.

Results

In this study, during the period of 2007-2017, out of 2897 cases of bites, 184 cases (6.35%) were sensitive to the anti-scorpion antidote. Of these, 83 (45.1%) were male and the rest were female.

The highest susceptibility rate was reported in 2007 with 52 cases and over time the sensitivity of the antidote decreased and reached zero in 2016 (Figure 2).

Percent	Number	Items	Variable
1/45	83	Male	Gender
9/35	101	Female	
1/64	66	Urban	Address
64/1	118	Rural	
3/35	65	6-0	Bite Hours
4/17	32	12-6	
00/19	35	18-12	
3/28	52	24-18	
01/20	37	left hand	Bite Site
50/18	34	Right hand	
03/16	30	Body	
7/21	40	Left foot	
5/18	34	Right foot	

9/4	9	Head and neck	Age Group (Year)
2/9	17	5-0	
8/3	7	9-5	
1/7	13	13-9	
00/13	24	19-13	
29	55	29-20	
8/15	29	39-30	
00/13	24	49-40	
3/3	6	59-50	
3/4	8	69-60	
5/0	1	89-80	

Table 1. Some Demographic Indicators of Scorpion Antidote Allergies

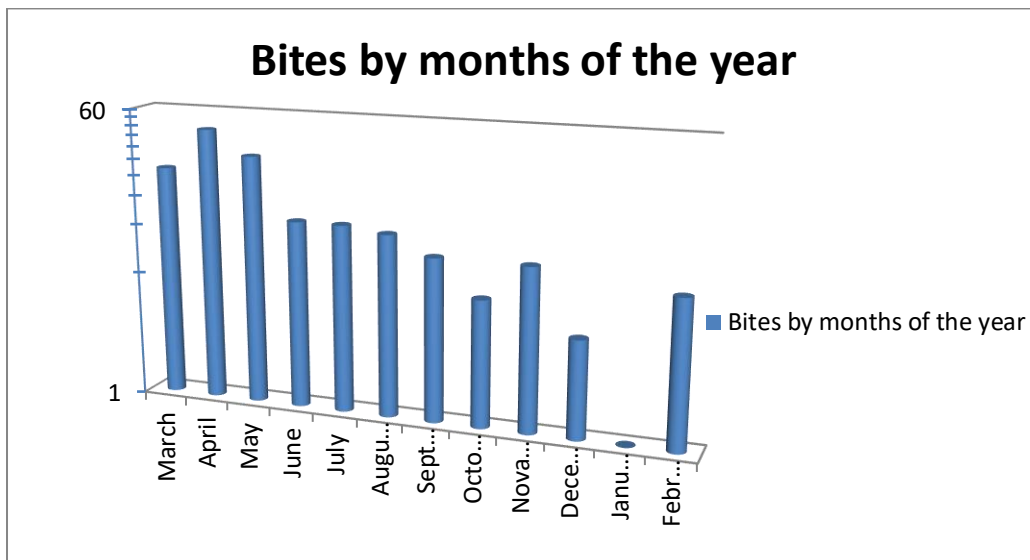


Figure 1. Number of Cases of Scorpion Antidote by Months of the Year

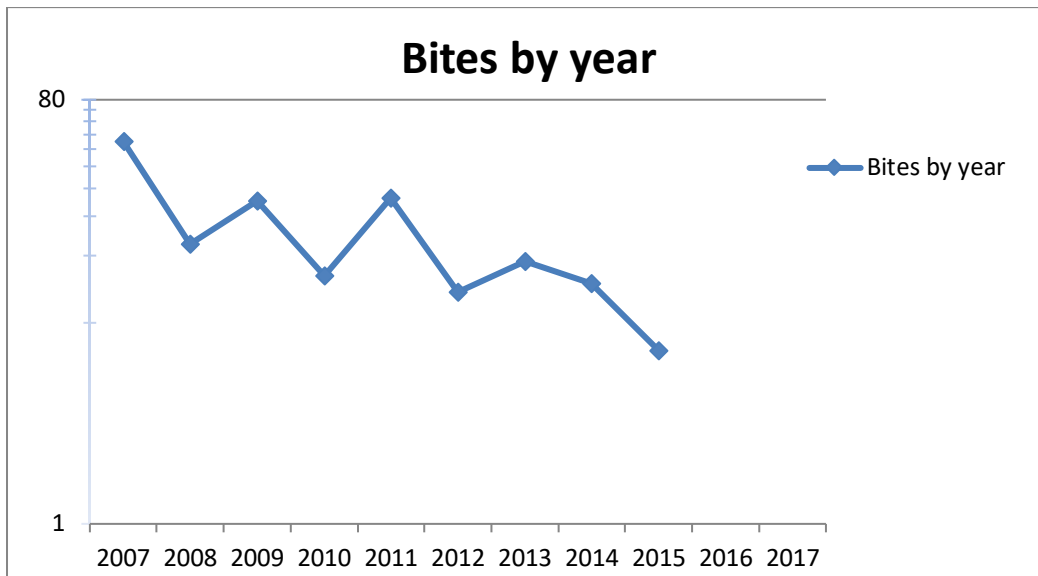


Figure 2. Number of cases of scorpion antidote susceptibility by year

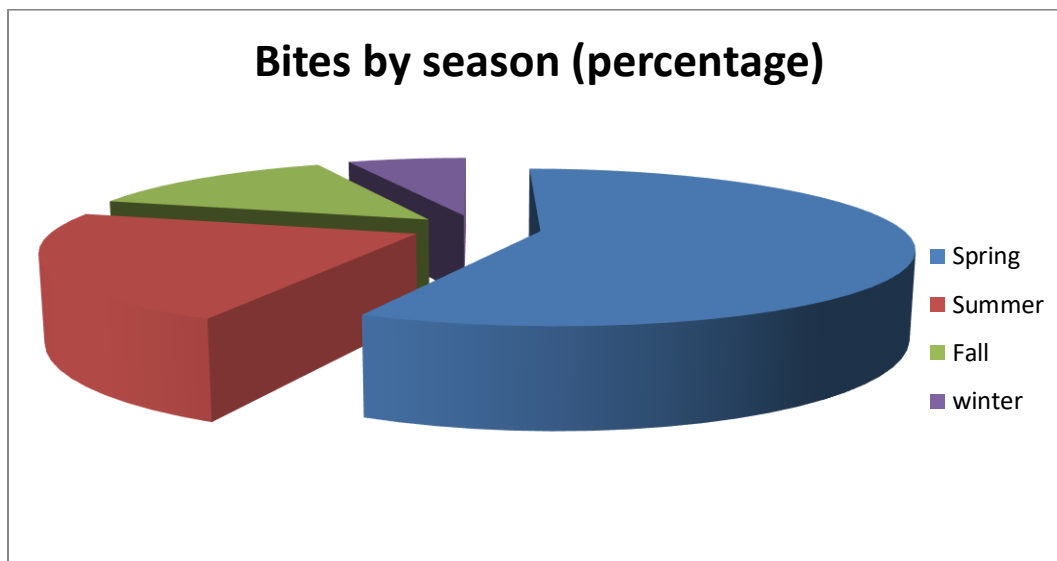


Figure 3. Number of cases of scorpion venom susceptibility by seasons

The average referral time after a bite in people with antidote allergy is 435.92 minutes. The mean referral time in non-allergic individuals was 370.07 minutes, with a statistically significant difference between the two groups ($p = 0.016$). In this way, the average referral time in people with allergies was significantly higher.

The results of binomial test showed that people living in rural areas compared to urban areas were statistically significantly more sensitive to anti-scorpion antibodies ($p = 0.000$). But no significant relationship was observed between gender and sensitivity ($p = 0.54$).

Discussion

According to the results of the present study, rural residence (64.01%) is one of the most common in scorpion stings patients referred to Behbahan medical centers, which is in accordance with other studies.^{10,11,12} The environmental conditions of scorpions as well as the type of activity and occupation of individuals agriculture, industrial and construction works, railways, transportation in various warehouses, transportation of thorns and debris, and animal feces as fuel, are among the influential factors in scorpion stings.¹²

Since no research has been found on the study of scorpion antidote skin test, we will review the research related to scorpion bites.

According to the results of the present study, the highest susceptibility to scorpion antidote occurred in people with scorpion bites in May, while Talebian and Droudgar¹⁰ and Hosseini Nasab et al.¹¹ had the highest scorpion bites in Kashan and Kerman, respectively. July has been mentioned. These factors seem to play an important role in intensifying allergy to the antidote and in order to reduce the cases of allergies and their side effects, it seems necessary to pay attention to these cases.

The highest and lowest age groups in scorpion sting patients were 20-29 and 80-89 years, respectively, while in the study of Hassani Nasab et al., The highest and lowest age groups were 10-19-19 and 70-79 years, respectively.¹¹

Scorpion bites were more common at 0-6 o'clock. Scorpions usually spend days in a safe place, such as crevices in walls, under rocks,

under debris, under mats and shards, between leaves, or under loose skin. Trees such as eucalyptus, palm tree trunks, among construction debris and even inside shoes, boots, and slippers are closed and go out of their safe place to hunt at night.¹³

The least bites occurred in the head and neck area. According to studies, head and neck bites are dangerous at the level of the limbs.¹⁴ The mean referral time in people with allergies was significantly higher than people without allergies that need to be investigated.

In this study, the prevalence of skin allergies to scorpion antidote test and its related factors was performed in Behbahan city. One of the limitations of this study was that due to the retrospective study of factors such as Hb, Hct, Plt, UA was not possible. Therefore, it is recommended to study the above factors in other studies.

Conclusion

Considering the results of high prevalence of allergy to anti-scorpion antibodies in spring, warm months of the year and people living in rural areas, these factors seem to play an important role in intensifying allergy to antidote and to reduce allergies and complications. It seems necessary to pay attention to these cases. Also, the declining trend of case-by-year reports of allergies to scorpion antidote is controversial.

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