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Common causes of anaphylaxis in different age groups at KAU Hospital

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ABSTRACT

Incidents of anaphylaxis are on a rise globally, which calls for its immediate recognition and proper management. Till date, there have been a very few studies addressing the issue of etiology of anaphylaxis with varying age-groups in Saudi Arabia. This study aimed to collect data about common causes of anaphylaxis and categorize them according to their prevalence in different age groups at a hospital in Jeddah. Data was collected from emergency department staff of King Abdulaziz University Hospital, in the form of a questionnaire including queries about anaphylaxis based on most common causes, age group, symptoms and frequency of its occurrence in each age group. A total of 112 cases of anaphylaxis were reported; adults were the most common representing 33% of the studied population. Food allergy was the most prevalent trigger for anaphylaxis (42.8%) overall. The most common cause of anaphylaxis was food and drug allergy (45.45% and 40.9 %) in children aged 6-12 years and food allergy in pre-school kids (59.25%). No significant cause of anaphylaxis could be observed among teenagers. In infants, food allergy and insect bite were the most significant triggers of anaphylaxis (43.4% and 52.1%). Anaphylaxis due to latex was the least prevalent cause among all age groups. In Saudi Arabia, anaphylaxis mostly occurred among adults, drug allergy being most common cause. Food allergy was a common general trigger of anaphylaxis which also remained the most common cause in children along-with drug allergy, preschool kids and infants along-with insect bite.

Keywords: Anaphylaxis, age-groups, causes, management, Saudi Arabia

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INTRODUCTION

Anaphylaxis is a sudden onset of potentially lethal allergic response which can be triggered by a variety of substances such as food items, venoms, latex, insect stings and drugs. Because of its rapid progress it can be fatal, which calls for its immediate diagnosis and treatment [1]. Though being a global life threatening condition, there is still a lack of information about the etiology and diagnosis of anaphylactic reaction [2]. Symptoms of anaphylaxis include a collection of clinical manifestations that affect multiple organ systems leading to breathing difficulty and hypotension, which increases the chances of fatality [3]. Presence of these multiple symptoms leads to difficulty in its diagnosis and delay of treatment [4]. A quick recognition of anaphylaxis is very important for its effective treatment because even though the symptoms may be mild, its progress is very rapid [5]. There is no specific test or a *gold standard criteria* for detecting anaphylaxis but it can be diagnosed with much chances of accuracy based on clinical symptoms. The present day, immediate treatment of anaphylaxis is an instantaneous injection of epinephrine/adrenaline, which needs to be administered spontaneously to the patient, as soon as anaphylaxis is detected [6].

Most commonly reported among children and teenagers, the exact symptoms and causes of anaphylaxis are known to vary among different age groups and with different geographical regions [7]. The incidents of anaphylaxis have been reported to increase globally, with prevalence rates ranging between 21.28 and 49.8 per 100,000 persons/year [8]. There is a lack of a comprehensive report from Saudi Arabia that would standardize the incidence and prevalence of anaphylaxis in this region so that effective measures could be taken to prevent its occurrence. In this study, we tried to explore potential risk of anaphylaxis in different age groups based on the frequency of occurrence and find its most common cause among these age groups in a hospital setting of Saudi Arabia. Studying the common cause that triggers anaphylactic reaction in each age group could lead to its proper diagnosis and management at the right time thus reducing the mortality and morbidity caused by anaphylaxis.

MATERIALS AND METHOD

Data collection:

A total of 112 emergency department staff that included 2 ER specialists, 6 ER residents, and 104 ER nurses from King Abdulaziz University Hospital (KAU), Jeddah were interviewed in this study. They were asked to fill a questionnaire regarding anaphylactic cases registered in the hospital from January 2016 to March 2017. The questionnaire included queries about

anaphylaxis – most common causes, most common age group, presenting symptoms and frequency of occurrence of anaphylaxis in each age group. All of the 112 questionnaires were filled by the staff on the basis of cases presented at the hospital. The responses were collected for subsequent data analysis.

Statistical analysis:

Data analysis was done by Statistical package for social science (SPSS) Version 16 (Chicago, USA), IL 60606-630. The qualitative data was presented in the form of number and percentage. Chi-square was used as test of significance for qualitative data. Significance was considered at p value less than 0.05.

RESULTS AND DISCUSSION

Demographics

This study included 112 individuals registered in KAU hospital over a period of 1 year. The patients were categorized into 5 age groups: adults > 20 years, teens (13-19) years, children (6-12) years, preschool kids (2-5) years and infants < 2 years. Anaphylaxis was most common in adults (33%). Preschool age and infant jointly represented more than 40% of the studied cases (Table 1).

Food allergy was the most common trigger for anaphylaxis (42.8%) among all age groups. Drug allergy and insect bite represented more than one-third of the studied cases (Table 2).

Distribution of causes among age groups

In adults, drug allergy was the most significant cause of anaphylaxis (51.3%). Anaphylaxis due to food allergy was also common in them, but was a non significant cause. In children aged 6-12 years, food and drug allergy were the most significant causes of anaphylaxis (45.45% and 40.9 %) whereas food allergy was a significantly prevalent trigger of in pre-school kids (59.25%). No significant cause of anaphylaxis could be observed among teenagers; however, drug allergy, insect bite and latex were among some of the common causes, which varied non-significantly. In infants, food allergy and insect bite were the most significant triggers of anaphylaxis (43.4% and 52.1%). Anaphylaxis due to latex was the least significant cause among all age groups (Table 3).

Though being a life threatening syndrome which is common all over the world and dating back to many centuries, there has been an obstruction in the investigations of anaphylaxis owing to a paucity of its diagnostic criteria and no specific laboratory tests that would confirm its occurrence right away [9]. Studying the most common trigger of anaphylaxis in each age group and monitoring its occurrence according to population distribution could help in its early

management and proper diagnosis. Since the incidents of anaphylaxis are on a rise and there is a lack of research about these incidents in Saudi Arabia, it is important to know more about this life threatening syndrome in our region.

Varying episodes of anaphylaxis have been reported among different age groups [10]. Most of the cases of anaphylaxis registered in KAU hospital in Saudi Arabia were those of the adults. By far, there has been no direct study based on the prevalence of anaphylaxis in varying age-groups, however, a few studies show a high occurrence of anaphylaxis in adults [11,12]. Anaphylaxis is also very commonly reported in children under 5 years of age, which was the trend observed in our study as well [13].

Much research has been done on the common causes that trigger anaphylaxis, but such reports from Saudi Arabian region are lacking. In our study, we found that food allergy was the most common cause of anaphylaxis. Drug allergy and insect bite were among other largely prevalent causes of anaphylaxis in this population. These findings are reinforced by another study from Saudi Arabia which reports similar results [14].

In our study, drug allergy was the most common cause of anaphylaxis in adults of this region. Similar has been reported in studies from other parts of the world as well [15,16]. In children, drug and food allergy, both played a significant role in triggering anaphylaxis. However, in kids aged 2-6 years, food allergy was seen as the most common cause of anaphylaxis. These findings are in line with previous studies from our region as well as other geographical settings as well [14,17]. In the infants of this region, food allergy and insect bite were the most common cause of anaphylaxis. Infants usually get into contact with food either directly, or through breast milk and accidental ingestion, which triggers anaphylaxis [18]. Insect bite and food allergy have been reported to be the most common triggers of anaphylaxis in infants and children in other study from the same region as well [14]. Significant cause of anaphylaxis in teenagers remained unidentified. Latex was observed to be the least significant cause of anaphylaxis among all age-groups in this region. Latex is reported to be less predominant cause of anaphylaxis in a previous study as well [19].

CONCLUSION

In conclusion, anaphylaxis was most prevalent among adults followed by preschool kids in this region. Categorizing age-wise, food allergy was most common cause of anaphylaxis in children, pre-school kids as well as infants. Drug allergy and insect bite were other prevalent causes in children and infants of this population respectively. No specific cause of anaphylaxis in

teenagers was identified. This study is limited because of its small sample size; however it is much significant since it adds to the little known information about the prevalence of anaphylaxis and its most common cause among different age groups in Saudi Arabia which can help our clinicians to identify and manage anaphylaxis cases promptly resulting in decrease of its associated risk factors.

Table 1: Percentage distribution of anaphylaxis among different age groups

Age group	Number(%)
Adults	33
Teenagers	2.5
Children	19.6
Preschool kids	23.2
Infants	20.5

Values are presented as number (%)

Table 2: Percentage distribution of causes of anaphylaxis among different age groups

Cause	Number (%)
Food allergy	42.8
Drug allergy	30.3
Idiopathic	3.5
Insect bite	19.6
Latex	3.5

Values are presented as number (%)

Table 3. Causes of anaphylaxis among various age groups.

Age group	Underlying causes				
	Food allergy	Drug allergy	Idiopathic	Insect bite	Latex
Adult n=37	12 (32.4)	19 (51.3)*	4 (10.8)	1 (2.7)	1 (2.71)
Teenagers n=3	-	1 (33.3)	-	1 (33.3)	1 (33.3)
Children n=22	10 (45.45)*	9 (40.9)*	-	2 (9.1)	1 (4.5)
Preschool kids n=27	16 (59.25)*	5 (18.51)	-	5 (18.51)	1 (3.7)
Infants n=23	10 (43.4)*	-	-	12 (52.1)*	1 (4.3)

Values are presented as number (%). $P \leq 0.05$ was considered as statistically significant.

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