

## Knowledge of dentists of Bandar Abbas toward anaphylactic shock

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**Abstract:** Anaphylaxis is one of the most urgent clinical allergic events and it can have a profound effect on the life of the patient and those around him, it has been observed that local anesthetics used by dentists can cause anaphylactic shock in patients, the anaphylactic shock has vital importance for many patients. The aim of this study is to know the level of dentists' knowledge about anaphylactic shock and their state of readiness to in the face with it.

**Method:** 111 dentists participated in this study, the participants were performed the questionnaire that contain 16 questions with precision and enough patience, the questioner was used in supplied article by Çetinkaya et al.

**Result:** None of the dentists correctly answered all the questions. Especially those that associated anaphylactic shock. An option that was chosen by dentists as the first sign of anaphylactic shock, respiratory symptoms (63%).

**Discussion:** This study is an evidence of this reality that the dentists have had not enough and scientific knowledge about the right amount of epinephrine injection in the treatment of shocks from the injection of the local anesthetics.

**Conclusion:** Considering the results, it is advisable that training workshops be held to increase Dentists Knowledge about anaphylactic shock so that if suddenly this allergic reaction happen, the dentist could select the right treatment and manage the situation.

**Keywords:** Anaphylactic Shock, Anaphylaxis, Local Anesthetics, Dentistry.

### Introduction

The anaphylaxis means acute allergic reactions that is life-threatening humans and animals that occurs through specific immune response and histamine effects<sup>1</sup>. Anaphylaxis is one of the most urgent clinical allergic events<sup>2</sup> that physicians may be encountered<sup>3</sup>. Anaphylactic shock can have a profound effect on the life of the patient and those around him, sometimes the patient may die despite the urgent medical attention<sup>4</sup>. Anaphylaxis is a relatively common problem that affects 2% of the population communities<sup>5</sup>.

Most local anesthetics used in dentistry, they use local anesthetics to control the pain during dental work and it seems to be safe<sup>6</sup> but it has been observed that local anesthetics used by dentists can cause anaphylactic shock in patients<sup>7</sup>.

Anaphylaxis shock occurs suddenly and quickly<sup>8</sup>. Irrespective of what the mechanism of anaphylactic shock, all health professionals should be able to provide medical treatment in these occasions<sup>9</sup> and negligence and lack of take timely actions may cause death in patients by anaphylactic shock<sup>10</sup>, most dentists refer their patients who are suspected allergy to drugs to special allergic clinics. Drug allergy and anaphylaxis may occur with no previous symptoms, so dentists as well as other health specialist must be aware about signs, symptoms and treatment of anaphylaxis<sup>2</sup>, to be able properly manage the situation when they faced it. Some symptoms of anaphylaxis are laryngeal edema, hypotension, cardiac arrhythmias and lightheadedness<sup>11</sup>.

Since the anaphylactic shock has vital importance for many patients and requires immediate intervention and since there is not much information about the dentist knowledge about anaphylactic shock. The aim of this study is to know the level of dentists' knowledge about anaphylactic shock and their state of readiness to face it.

## Material and Methods

This is a cross-sectional and descriptive-analytic type of study, the participants of this study were recruited from dentists who work in dental clinics or their private office in Bandar Abbas city.

The list of dentists provided and the participants were selected by simple numeric randomization. 116 dentists participated in this study. Admission criterion for this study were at least a doctoral degree in dentistry and in case of incomplete questionnaires, the dentist was excluded from the study. Information for this study was collected by a questionnaire that used in a supplied article by Çetinkaya et al<sup>2</sup>.

After selecting the desired dentists by random selection numerically, participants were understood the importance of this study before performing the questionnaire. The participants were asked to perform the questionnaire that contains 16 questions with precision and enough patience; with the answers of those questions can evaluate the level of dentists' awareness about the signs, symptoms and treatment of anaphylactic shock and other side effects of local anesthetics. The first questions of the questionnaire were for collecting demographic information and 12 questions were about the anaphylactic shock and local anesthetics. Eventually, after collecting all the data, the obtained data was analyzed using SPSS (version 16) and Chi-square analytical test.

## Result

Selected questionnaire was completed by 116 persons from 130 dentists. Among the study participants, 68/4% were male and the rest female. The mean age of the participants in this study was about  $40 \pm 5$  years. Term occupation of dentists participating in the study had an average of about 20-5 years. According to the results of this study, dentists had brief acquaintance to signs and symptoms of anaphylactic shock and was unexpected, so that none of them correctly answered all the questions. Especially those that associated anaphylactic shock. An option that was chosen by dentists as the first sign of anaphylactic shock, respiratory symptoms (63%). Because only 79 percent of dentists knew epinephrine as the first drug of choice for treatment of anaphylactic shock, 38% of dentists believed that epinephrine should be administered intramuscularly, 83 percent of dentists had the essential awareness from the importance of emergency drugs maintenance (including Epinephrine) in their office, but nonetheless 20% of them didn't keep the related drugs in anaphylaxis treatment in their office. There is no significant relationship between gender, work experience and academic rank of dentists and their knowledge and ability in the way of dealing with diseases and Emergency Management ( $p > 0/05$ ).

## Discussion

Anaphylaxis is one of the immediate clinical incidents in daily Medical career and should be diagnosed and treated at the earliest opportunity<sup>(5,11)</sup>. Since anaphylaxis might happen anywhere-particularly in therapeutic settings- all medical specialist should be able to diagnose and treat anaphylaxis<sup>12</sup> even dentist because they use local anesthetics that may cause anaphylactic shock<sup>7</sup>. So, it seriously and widely has been considered by the dental community since many years ago.

Epinephrine is the drug of choice and the main treatment of anaphylaxis, and the subsequent treatment depends on clinical response to the drug<sup>13,14</sup>. The results obtained in the past 10 to 15 years ago shows that the subcutaneous injection of epinephrine is more efficient than other ways, but In a study was conducted by Simons F Estelle R and Simons Keith J showed that to control the symptoms caused by anaphylactic shock, intramuscular injection of epinephrine is more effective and more efficient than subcutaneous injection<sup>15,16</sup>. This study like other similar studies in other countries such as Khalil's study, Çetinkaya's study and Nekourad's study<sup>6,8,12</sup> demonstrate that many dental specialists have had not enough knowledge and awareness about this fact that epinephrine is the main selective drug and muscular direction to control the anaphylaxis.

The results from this study indicated that about 38 percent of dentists select the intravenous injection of epinephrine as a treatment to control the anaphylactic shock, the intravenous injection of epinephrine may be dangerous and deadly.

Moreover, this study is an evidence of this reality that the dentists have had not enough and scientific knowledge about the right amount of epinephrine injection in the treatment of shocks from the injection of the local anesthetics. So that in the same study that was conducted in 2002, the results showed that all dentists were not aware of the signs and symptoms of anaphylaxis<sup>17</sup>. Whenever only about half of the participants in this study considered epinephrine as the first drug for the therapy of anaphylaxis and on the other hand, this study demonstrated that the level of academic and scientific awareness of participants was not enough from the caused allergy by the anaphylactic shock and local anesthetic drugs. This study in verification with another study<sup>7</sup> demonstrated that 91 percent of participations were aware about the significance of urgent drug maintenance like epinephrine and etc... In their office, but were not aware of the method of their consumption. However, most of drugs such as corticosteroids were chosen by some of participations in current study as the first selective drug to control the anaphylactic shock.

## Conclusion

As a result of this study can be realized that the level of knowledge of dentists about anaphylactic shock is low and even anaphylactic shock is low probability of occurrence but it has critical importance for the patient and they may die if they don't get the right treatment. Considering the results, it is advisable that training workshops be held to increase Dentists Knowledge about anaphylactic shock so that if suddenly this allergic reaction happen, the dentist could select the right treatment and manage the situation.

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