

ORIGINAL

Level of knowledge about anaphylactic shock in students of the Faculty of Dentistry, Interamerican Open University

Nivel de conocimiento sobre shock anafiláctico en estudiantes de la Facultad de Odontología, Universidad Abierta Interamericana

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ABSTRACT

Introduction: anaphylactic shock is a severe and unexpected allergic reaction that has a rapid onset and can even cause the death of the patient. Its rapid clinical diagnosis is of vital importance since it will involve the compromise of several important systems.

Objective: to determine the level of knowledge about anaphylactic shock and its dental management by 4th and 5th year students of the Universidad Abierta Interamericana, School of Dentistry.

Method: a cross-sectional study was conducted using a 15-question survey. First, 4th year students were surveyed before they began the Clinical and Integrated Surgery of Adults and Geriatrics II course and then, 5th year students were surveyed during the break from the Oral and Maxillofacial Surgery and Traumatology course.

Results: the average general knowledge of 4th and 5th year students is low since error rates are greater than 50 %. As for the first-choice medication, a high rate of incorrect answers was observed, since they did not know which one it was, but they did know the correct route of administration. As for knowledge of the university protocols, the results were poor.

Conclusions: most students are unaware of the existence of the university protocols for acting in cases of emergency, although on the other hand, in general, they are aware of the existence of the first aid kit to deal with emergencies.

Keywords: Shock; Anaphylaxis; Knowledge; Students; Dentistry.

RESUMEN

Introducción: el shock anafiláctico es una reacción alérgica, severa e inesperada que tiene un comienzo rápido que incluso puede causar la muerte del paciente. Su diagnóstico clínico rápido es de vital importancia ya que se va a encontrar con el compromiso de varios sistemas importantes.

Objetivo: determinar el nivel de conocimiento sobre shock anafiláctico y su manejo odontológico por parte de los estudiantes de 4 y 5 año de la Universidad Abierta Interamericana, Facultad de Odontología.

Método: se realizó un estudio de corte transversal, mediante una encuesta de 15 preguntas. Primero, se encuestó a los estudiantes de 4to año antes de que comiencen la materia Clínica y cirugía integrada de adulto y geronte II y luego, a los estudiantes de 5to año en el receso de la materia Cirugía y traumatología bucomaxilofacial.

Resultados: el promedio del conocimiento general de los estudiantes de 4to y 5to año es escaso ya que las tasas de error son mayores al 50 %. En cuanto a la medicación de primera elección se observó un alto índice

de respuestas incorrectas, ya que no conocen cual es, pero si conocen la vía adecuada de administración. En cuanto al conocimiento de los protocolos de la universidad, los resultados fueron escasos.

Conclusiones: la mayoría de los estudiantes desconoce la existencia de los protocolos de la universidad para actuar en casos de emergencia, aunque por otro lado, en general, conocen la existencia del botiquín de primeros auxilios para atender casos de emergencia.

Palabras clave: Shock; Anafilaxia; Conocimientos; Estudiantes; Odontología.

INTRODUCTION

Anaphylactic shock is a severe and unexpected allergic reaction that has a rapid onset and can even cause the death of the patient. Therefore, its rapid clinical diagnosis is vital since it involves several important systems, such as the cutaneous, respiratory, gastrointestinal, and cardiovascular systems. These systems help the individual to function properly.⁽¹⁾

Its appearance has increased in recent years, so dental professionals should understand that the signs and symptoms of anaphylactic shock appear immediately after administering the antigen. Among our main clinical manifestations are the skin, where pruritus, edema, and urticaria will occur; we will also observe marked hypotension and respiratory distress; in some cases, gastrointestinal manifestations such as abdominal pain, vomiting, and diarrhea may occur. Anaphylactic shock is a biphasic reaction, i.e., even if the episode has been controlled, it may recur up to 72 hours later.⁽²⁾

As for treatment, adrenaline is considered the drug of choice due to its α -adrenergic properties. It will produce vasoconstriction to help peripheral vasodilatation, improving hypotension, erythema, urticaria, and angioedema. Its β -adrenergic effect causes bronchodilation, increases cardiac output and contractility, and prevents the release of mediators from mast cells and basophils. It also improves coronary blood flow.⁽³⁾

Regarding the preparation of adrenaline, the dentist needs to know how it is used and how it is presented. On the market, there is the adrenaline ampoule that must be loaded into a syringe and the auto-injection devices. In both cases, there are advantages and disadvantages. In the case of the ampoule, its advantage is that it is economical, but its disadvantage is that the dentist cannot load the syringes. The adrenaline becomes inactive due to the heat, putting the patient's life at risk. The advantage of self-injection devices is that they are easy and safe to apply, but the disadvantage is that they are expensive and have a short shelf life.⁽³⁾

Anaphylaxis is a condition that requires immediate assistance to resolve; it can occur in different environments: office, hospital, school, home, or any other public space. For this reason, the dentist should be aware that anaphylactic shock is a severe allergic reaction that can cause the death of the patient and should not hesitate with its resolution.

The important thing in the dental consultation is to take a correct clinical history of the patient, taking into account his or her personal and family history, whether the patient is taking any important medication or if he or she has had previous allergies.⁽⁴⁾

Due to the short time students spend during their internships, important steps are often omitted, which can trigger a very important medical emergency such as anaphylactic shock. We understand that looking at the patient is paramount, not just focusing on the dental condition.⁽⁴⁾

Therefore, it is of utmost importance for students as future health professionals to know anaphylactic shock and the proper use of medications to treat it.⁽⁴⁾

Objective: to evaluate the knowledge about anaphylactic shock of fourth- and fifth-year students attending the School of Dentistry of the Universidad Abierta Interamericana.

METHOD

Information was collected by applying a survey to fourth- and 5th-year students of the Faculty of Dentistry - UAI based on their knowledge of and dental management of anaphylactic shock.

A survey was conducted with the tutor, where 15 questions were asked to obtain information related to general knowledge about anaphylactic shock, the use of drugs for its treatment, and the adequate use of adrenaline.

RESULTS

The information obtained from the survey of 30 students (13 4th-year students and 17 5th-year students), of which 60 % were female (18 females in total) and 40 % were male (12 males in total), was used as a basis for the analysis).

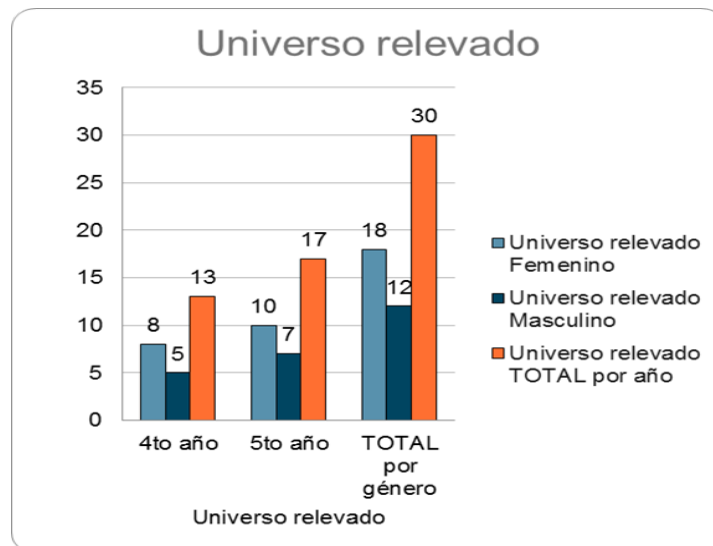


Figure 1. Distribution of surveyed students by gender and academic year

After the survey, the most specific questions regarding anaphylactic shock were collected, such as the definition of anaphylactic shock, first choice medication, the dosage of the first choice medication, adequate route of administration, if they know the existence of a protocol in the university regarding anaphylactic shock, if they know the existence of a first choice medication kit in the university, in case a patient presents anaphylactic shock.

The items were scored correctly and incorrectly according to the answers given by the students to determine their level of knowledge.

Year of study	Efficient	Deficient	Difference between efficient and deficient
4th year	37,97	62,03	-24,05
5th year	39,64	60,36	-20,72

Then, an average of the level of knowledge about anaphylactic shock by year of study was calculated, yielding the following results:

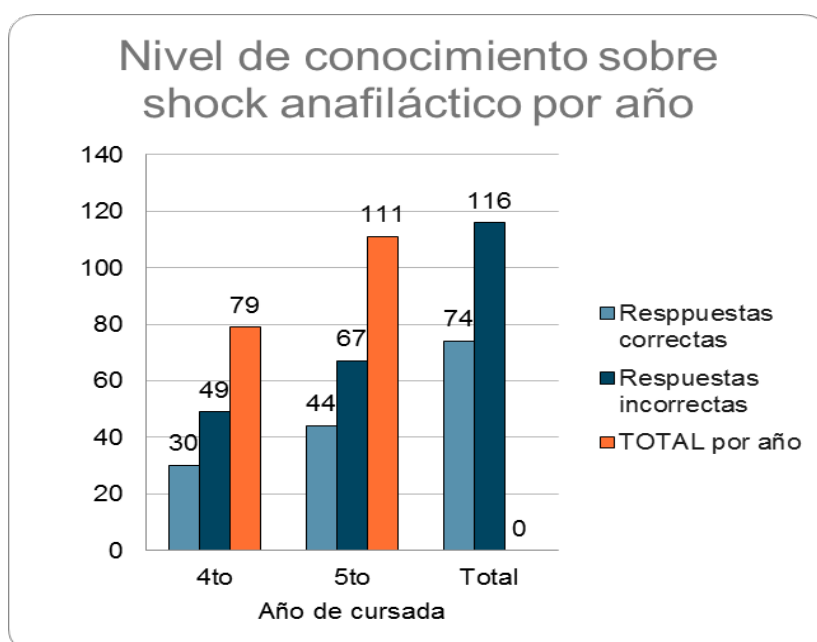


Figure 2. Level of knowledge about anaphylactic shock

The figure show that although the 5th-year students obtained 44 % of correct answers, there are no major differences concerning the 4th-year students, who obtained 30 % of correct answers.

Regarding assessing knowledge of anaphylactic shock, questions were selected from the survey with the following criteria: general definition of anaphylactic shock, clinical involvement, and knowledge of the use of adrenaline.

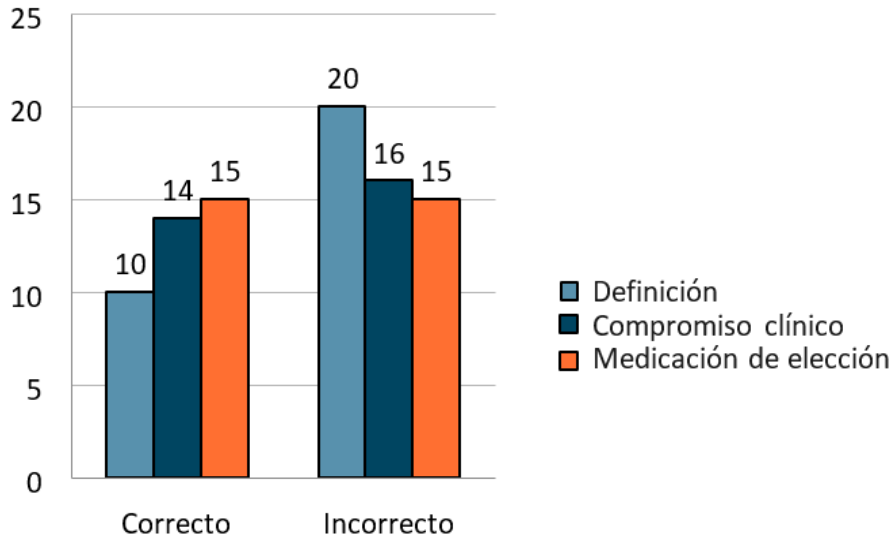


Figure 3. Assessment of general knowledge of anaphylactic shock

Knowledge about the definition could be better; errors are usually higher. Regarding the clinical involvement of a patient with anaphylactic shock, it is acceptable while regarding the first lesson medication; both courses matched their answers; the surveys showed that students of 4th and 5th year affirm that the first-choice medication to treat a patient with anaphylactic shock is corticosteroids.

Assessment of knowledge on the use of adrenaline: We analyzed the students' knowledge of the use of first-choice medication, yielding the following information:

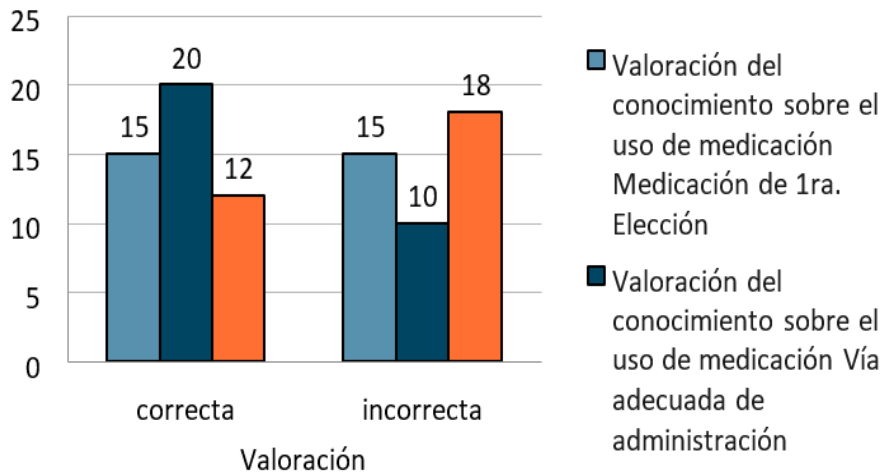


Figure 4. Assessment of knowledge about the use of the medication of choice

Regarding the first-choice medication, it was observed that both courses obtained the same number of correct and incorrect answers. Regarding the appropriate route of administration, it was observed that students of both courses know how to administer medication if the patient presents with an allergy, anaphylactic shock, etc.

Regarding the dosage of the first-choice medication, both courses presented a deficiency in their answers. Regarding general knowledge, it was asked whether they were aware of the existence of a medical emergency plan in the UAI School of Dentistry, and it was observed that most of the students in both courses were unaware

of it. In contrast to the emergency plan, most students are aware of the existence of an emergency kit. In summary, there needs to be a higher knowledge of medical emergency plans in the UAI dental school.

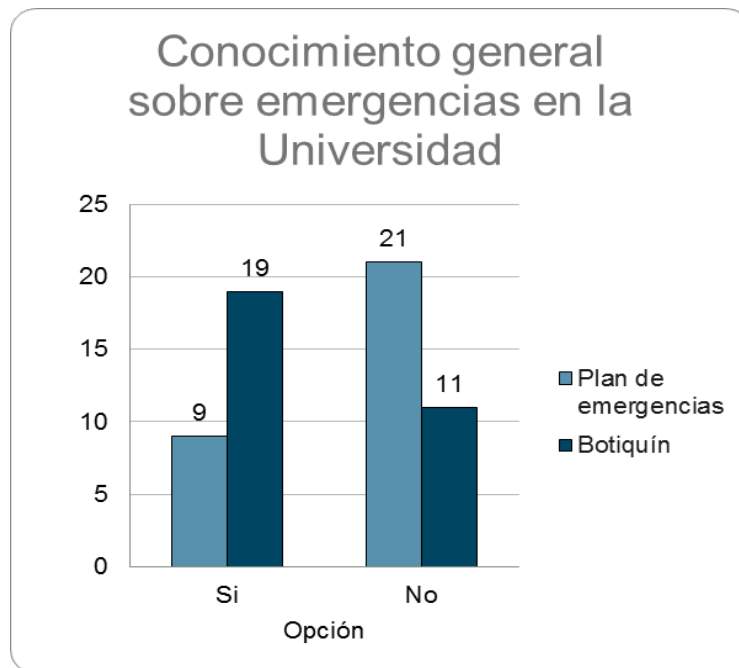


Figure 5. General knowledge about emergencies at the university

DISCUSSION

Anaphylaxis is considered a generalized or systemic hypersensitivity reaction, severe, rapid onset, unpredictable, and potentially fatal if action is not taken immediately; this can occur after the administration of different drugs, substances, or stimuli during the performance of a dental procedure.^(5,6,7)

Because it is considered a medical emergency and its identification and management must be rapid, the dentist should have a general knowledge of anaphylactic shock and its management. Studies currently carried out show that anaphylactic shock is poorly treated, and it is recommended that it be managed in dental emergency training programs.^(5,6,7)

In our study, a survey was made to 30 students in the 4th and 5th year of the Faculty of Dentistry of the Interamerican Open University, where the general knowledge of anaphylactic shock, the knowledge about the drugs to use, their doses and applications, the knowledge about the use of adrenaline and information questions were covered.

It was possible to determine that the students surveyed have an acceptable level of knowledge about anaphylactic shock, covering only its definition and route of administration of the first-choice medication; as for its causes, clinical involvement, and first choice medication, the result is unfavorable.

Regarding managing the clinical history, students are prepared and consider the patient's history of allergies. The evaluation of patients should include a correct medical history, updating it at each appointment, and taking vital signs before each treatment.

The results are deficient regarding the knowledge of the use of drugs for treating anaphylactic shock, which covers doses, actions, and precautions in this study, which could be better. Treatment of anaphylactic shock should be immediate and follow the proper protocol because the more drugs administered, the greater the risk of adverse reactions.⁽¹⁰⁾

Regarding pharmacological treatment for anaphylactic shock, in this study, it was found that students know adrenaline, but not as the drug of first choice, nor do they know its correct dosage.

This may be because the students do not have a high level of knowledge on the subject since, for both courses, the medication of first choice to treat anaphylactic shock is corticosteroids.^(11,12)

Regarding the information questions, the students need to know if there is an emergency plan in the UAI School of Dentistry, but they do not know about the existence of a first aid kit. The dental office needs a first aid kit containing the essential implements for handling this eventuality.

With the results obtained, it can be affirmed that the knowledge of the fourth and fifth-year Faculty of Dentistry UAI students about anaphylactic shock and its management in dentistry is regular or not very acceptable. Therefore, a protocol for the management of anaphylactic shock should be developed and taught in order to help the students since this is an emergency in which the patient's life can be compromised.

CONCLUSIONS

Knowledge about anaphylactic shock and its management in dentistry needs to be revised. The UAI School of Dentistry students have an acceptable knowledge of the definition of anaphylactic shock. However, clinical involvement could have been improved. They need to find out which is the first-choice medication for the treatment of anaphylactic shock since most of them answered that they would treat it with another medication. Generally, the fourth and fifth-year students of the UIA School of Dentistry do not consider themselves prepared to treat anaphylactic shock.

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CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

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