

ARE GENERAL PRACTITIONERS ALERT TO ANAPHYLAXIS DIAGNOSIS AND TREATMENT?

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SUMMARY:

Introduction: Anaphylaxis is a potentially lethal condition. Prevention of mortality depends on the correct diagnosis and on early epinephrine injection by the patients affected.

Objective: Evaluate practical knowledge of diagnostic and therapeutic aspects of anaphylaxis in general practitioners.

Material and Methods: 100 GPs were inquired through the use of an anonymous and voluntary questionnaire with 5 multiple-choice questions (just one correct answer): 3 about diagnostic aspects and two about therapeutic aspects of anaphylaxis. There was also one other question where it was asked the commercial name of the only device for epinephrine auto-injection available in Portugal. Eight minutes were given to fulfil the questionnaire. 92 complete questionnaires were eligible for evaluation

Results: In the three diagnostic questions we observed a percent of correct answers ranging from **36** to **46%**. In the two questions regarding anaphylaxis therapy only **18** to **22%** of the GPs gave the correct answers. Only **14%** of the GPs were able to indicate the correct commercial name of the epinephrine auto-administration kit.

Conclusions: The results of this study stress the need to promote, within the GP community, continuous medical education programmes regarding adequate diagnosis and treatment of anaphylaxis. Wrong concepts related to anaphylaxis treatment are frequently observed and this is a serious problem since GPs are the front-line doctors in the management of out-patient anaphylactic reactions and therefore it is absolutely mandatory that they can be able not only to accurately diagnose and treat an acute anaphylactic episode but also to make a correct retrospective diagnosis and to advise on the use of epinephrine auto-injectors.

INTRODUCTION

Anaphylaxis can be defined as a systemic hypersensitivity reaction that threatens patients' lives (1) and that affect two or more different organs or systems, most commonly having cutaneous, respiratory, cardiovascular or gastrointestinal manifestations (2).

Most authors agree that early epinephrine administration is the most efficient way to prevent deaths from acute anaphylaxis (3) and to rapidly reverse symptoms and signs of this reaction. Regarding this aspect, several studies have documented that intramuscular administration of epinephrine allows to achieve efficient serum levels much earlier than subcutaneous administration, and therefore the former should be the preferred route for epinephrine administration (4). However, it is also recognized that some deaths may occur even after duly epinephrine administration and that epinephrine overdose may also cause death (5).

A recent UK study has estimated an incidence of 8.4 anaphylaxis /100,000 persons-years (6) and one other study estimates that in the U.S. there are every year about 275,000 emergency room visits for anaphylactic reactions (7).

Most anaphylactic reactions occur in out-patient settings, since they are more frequently caused by foods, venoms or drugs (4,6). It is clear that an adequate treatment is based on immediate diagnosis and treatment with epinephrine i.m., fluid replacement e.v. and oxygen, together with other as needed therapies, such as steroids, antihistamines, bronchodilators or inotropic drugs. However, after the acute reaction has subsided the patient becomes asymptomatic and at that time only a thorough retrospective diagnosis could lead not only to adequate eviction measures but also to adequate epinephrine auto-administration, when necessary.

In order to achieve this goal, a good cooperation with general practitioners is essential in order to identify, counsel and follow-up these patients.

Therefore it was the aim of our study to assess anaphylaxis diagnosis and therapeutic basic knowledge in several groups of general practitioners in order to

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understand the need for educational programmes specifically directed to this area of medical action.

POPULATION AND METHODS

100 General Practitioners (GPs), randomly selected from a population of GPs which stated having personal or professional interest in allergic diseases, received a quiz with 5 multiple choice questions (only one correct answer) and one additional question where GPs were asked the name of the only commercially available epinephrine auto-injector in Portugal. This questionnaire is shown in Table I.

To each GP were given eight minutes to fulfil this quiz, without any further explanation or comment. We obtained 92 complete and valid questionnaires.

RESULTS

Results obtained in each one of the five multiple choice questions are shown in Figures 1 to 5, respectively. In each one of the figures, the correct answer is underlined.

IN ALL QUESTIONS THERE IS ONLY ONE
CORRECT ANSWER. **MARK IT DOWN!**

In acute anaphylaxis it is frequently present

- 1) hypertension
- 2) bradycardia
- 3) paralysis of lower limbs
- 4) bronchospasm
- 5) all of the above findings

The most frequent symptoms seen in anaphylaxis are:

- 1) gastro-intestinal
- 2) upper respiratory
- 3) lower respiratory
- 4) muco-cutaneous
- 5) cardiovascular

Mark the INCORRECT sentence. Anaphylaxis:

- 1) can cause an hypertensive crisis
- 2) can be caused by foods
- 3) can be caused by drugs
- 4) can be fatal in just a few minutes
- 5) can recur, up to 24-48 hours after the initial episode

The first drug to administer in acute anaphylaxis is:

- 1) injectable dopamine
- 2) oral steroids
- 3) injectable steroids
- 4) injectable anti-histamines
- 5) injectable adrenaline

What is the preferred route for adrenaline administration in an out-patient?

- 1) subcutaneous
- 2) nasal
- 3) endovenous
- 4) intramuscular
- 5) it does not make any difference

Do you know the name of the only device in Portugal for epinephrine auto-injection ?

No
Yes
Name: _____

Figure 6 shows the percent of GPs that could more or less correctly give the name of the commercially available epinephrine auto-injector.

In general, we observed that in questions relating to diagnostic issues of anaphylaxis, the percentage of correct answers varied between 36 and 46% (questions 1 to 3), while in questions regarding anaphylaxis therapy, these percentages are somewhat lower, between 18 and 22% (questions 4 and 5), although if we considered, in the 5th question, the answer "subcutaneous" as being also correct, the percent of correct answers would rise to 54%.

Only a very small fraction of GPs (14%) could indicate the name for the epinephrine auto-injector, which means that, in principle, more than 80% of GPs are not aware and therefore not immediately predisposed to prescribe this type of therapy, even if they retrospectively could identify an anaphylactic episode.

DISCUSSION

Anaphylaxis is a very important subject not only for the associated mortality but also because there is a readily available therapeutic option that can prevent death in a great number of cases. However, in this small study we are faced with the fact that there is, in Portugal as in other European countries, an important lack of pre and post-graduate medical knowledge on this subject. This insufficiency is probably a result of a gross underestimation of anaphylaxis incidence.

In fact, nowadays several studies have shown relatively high incidence of anaphylaxis (6) or emergency room admission for anaphylaxis, being estimated that it may represent 0.1 to 1% of all emergency room admissions (7). Besides, anaphylaxis is more frequently being caused by several foods such as tree nuts, fresh fruits or legumes (8), which are foods not commonly associated by the lay public with allergic reactions. This unrecognised aetiology may also contribute to underestimate anaphylaxis

In a previous study (10) we looked at hospital admissions for moderate to severe anaphylaxis (grade III and IV of Muller classification) during one year. In this study we could find out a huge difference in the early administration of epinephrine (much earlier if the attending physician was a specialist in allergy and immunology than if the attending physician was a GP or an internist). We believe that these data reflect a different attitude with epinephrine treatment and also a clear perspective on the fast and extremely effective actions of epinephrine with only a low risk of severe adverse

events, mainly when we are dealing with a young population without any previous cardiovascular diseases (as is the case with most food anaphylaxis)

However, we should not think that this is only a local or national issue or even that it is only a general practitioners' problem. Clark et al performed a very interesting multicenter retrospective study evaluating what kind of treatment was given for anaphylactic reactions following hymenoptera stings in 189 patients, treated in emergency rooms of academic medical centers in the USA, many of which supported emergency medicine residency programs (7). In this study the authors found that, even considering the period within 3 hours of emergency department arrival, only 16% of the patients had received epinephrine therapy, whether subcutaneous or intramuscular. It is worth mentioning that in this same study it was

shown that 68% of the patients had received antihistamines, 49% had received systemic corticosteroids and 7% inhaled bronchodilators (7). These data demonstrate a very low concordance with recommended guidelines for the treatment of anaphylaxis and, in fact, are not very different from some of the data in our study. In question nº 4, where GPs were asked about the first drug to administer in acute anaphylaxis only 22% answered epinephrine, the majority answering injectable antihistamines or corticosteroids. Differences regarding the lesser use of antihistamines than in Clark et al study can be due to the frequent systemic administration of both antihistamines and steroids, an option that was not possible to choose in our quiz.

Also in the aforementioned study the authors found that only 27% of these patients received an epinephri-

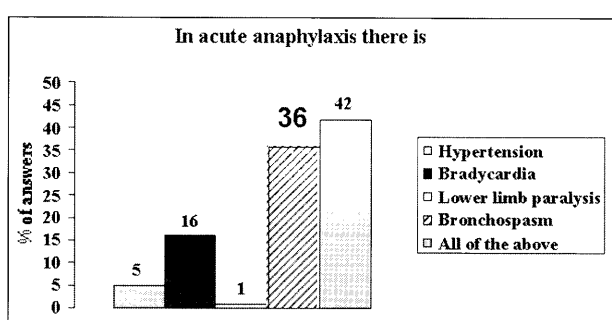


Fig. 1: Percentage of answers to the first question: (the correct answer is marked with red stripes).

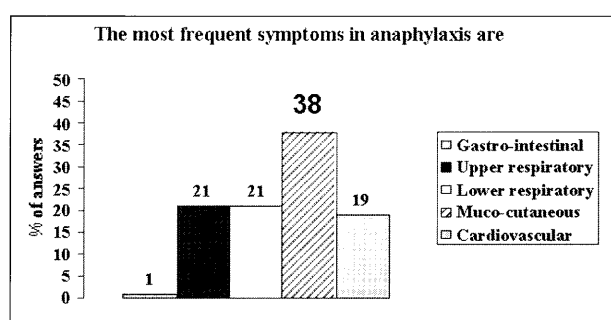


Fig. 2: Percentage of answers to the second question: (the correct answer is marked with red stripes).

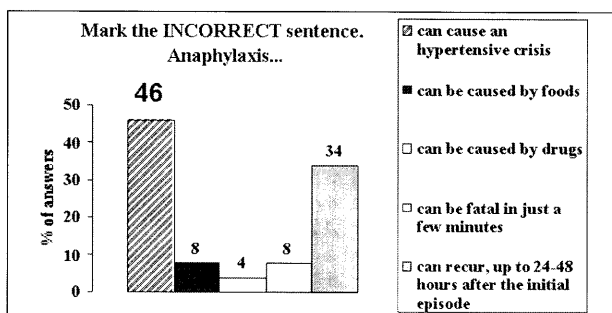


Fig. 3: Percentage of answers to the third question: (the correct answer is marked with red stripes).

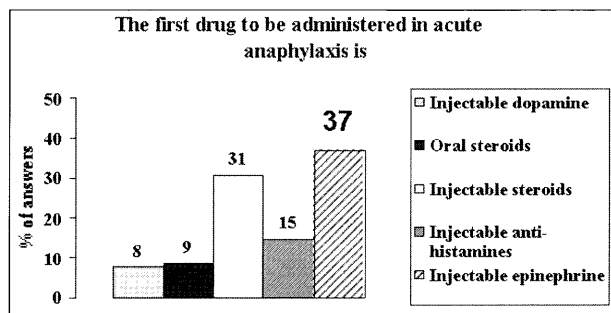


Fig. 4: Percentage of answers to the fourth question: (the correct answer is marked with red stripes).

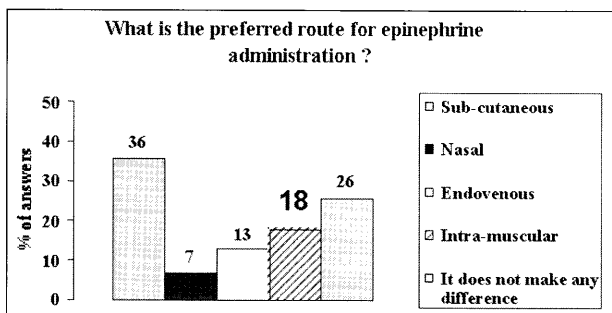


Fig. 5: Percentage of answers to the fifth question: (the correct answer is marked with red stripes)

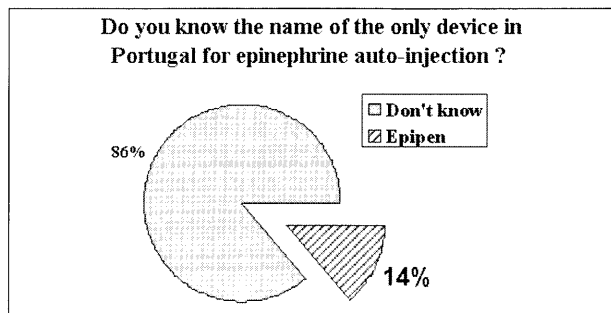


Fig. 6: Percentage of answers to the sixth question: (the correct answer is marked with red stripes).

ne prescription upon hospital discharge (7), which in our view can not be considered as a surprise since in that study only 16% received epinephrine in the acute anaphylactic episode. Other studies (10, 11) also showed comparably low levels of epinephrine prescriptions and this is one other aspect in which our study also coincides: it is difficult to have high levels of epinephrine prescriptions when only 14% of the GPs know the commercial name of epinephrine auto-injectors that they should prescribe.

It is obvious that it is not possible to extrapolate quiz results to evaluate clinical behaviours but it is reasonable to assume that the theoretical knowledge is necessary (although not sufficient) to induce epinephrine administration or epinephrine prescription (for auto-administration). However, in the absence of detailed emergency room records that could allow us to accurately evaluate what is our medical practice regarding diagnosis or therapy of anaphylaxis, we chose this quiz approach to give us an idea of our reality in this area.

Although our data are not very different from other published results from emergency room surveys, we view our results with some concern, since there is a very significant percentage of GPs that will not easily make a correct diagnosis of anaphylaxis and a even higher percentage of GPs that won't treat anaphylaxis with epinephrine but rather with systemic steroids or antihistamines instead, as several other studies have already shown (7, 12).

CONCLUSIONS

This study, in line with other national and international studies, underlines the urgent need of continuous medical education regarding practical dia-

gnostic and therapeutic aspects of anaphylaxis, in order to allow its early detection and treatment and also to familiarize practicing physicians, mainly GPs and physicians working in emergency rooms, with epinephrine administration and with the devices that allow patients to self-administer this life-saving drug. Immunoallergologists should bear in mind that they have, in this field, the leading responsibility of the medical education in this special area.

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