General Complications Occurred in the Dental Office During Common Odontal Therapy – Statistical Analysis

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Abstract

Introduction. Any dental treatment has a traumatic character, even for clinically healthy patients, and especially for sensitive patients or the ones in special conditions (children, the elderly, pregnant women). Therefore, risk assessment in patients with dental disorders is very important in the usual practice in the dental office. The purpose of our paper is to present the results of a study conducted by us to assess the overall risk before, during or after a common dental treatment, which is rather difficult, considering the multitude of factors involved. The material was represented by a cohort of 200 patients, 111 women and 89 men, aged between 20 and 60 plus, clinically and anamnestically assessed. 157 of them were considered clinically healthy and 43 had a pathological personal history. Their behaviour in the dental office was observed during the study and the results showed a total of 18 (9%) minor accidents, different in manifestation and severity, during the common dental treatment, i.e. 10 (5%) in clinically healthy patients and 8 (4%) in those having medical history. The discussions highlight the most frequent medical emergencies encountered as well as their probable causes. In conclusion, the frequency of general medical emergencies in the dental office is not too high. However, they may occur at any time, and the correct and rapid medical response can and should allow for their professional management. Therefore, it is necessary that the dental practitioner should be properly trained in this regard and should know the patient medical history. The responsibility for the decisions made and their consequences lies with the doctor, who has the professional, moral, and legal obligation to prevent medical emergencies, to recognise and address them appropriately, to know what can be done and what should not be done in such cases.

Keywords: medical emergencies, multidisciplinarity, professional responsibility.
Introduction

Among medical branches, dental medicine has a well defined place and significant importance in terms of workload, time and value of outcomes. It is logically included in the larger area of the patient overall health. Therefore, it is normal and necessary that the branch-related specific therapeutic manoeuvres should not be random and empirical but thoroughly and rigorously grounded on modern scientific bases. (3)

In the present paper we try to draw attention to two of the problems whose solutions influence, sometimes decisively, the final outcomes of this medical practice (3):

- the necessity to individualise the dental treatment plan in relation to the patient general medical conditions, whose presence can be determined using data that can be obtained by the dental practitioner through a judicious anamnesis and a rigorous, objective, complex and thorough clinical exam;
- the necessity for multidisciplinary therapeutic approach, medical teamwork, delegation of some responsibilities to specially trained and competent personnel, as well as for collaboration with the general practitioners and other specialists (if it is the case) who manage the general medical conditions of the patients. It is often in this way that some of the accidents and complications a patient who undergoes common dental treatment may be exposed to can be avoided.

The doctor aims to cure human suffering and prevent illness. However, he/she is the one who, through the attitude and gestures, the vocabulary used, the circumstances in which he/she announces a diagnosis, the superficial clinical examination, and the choice of a poorly documented therapeutic behaviour, can trigger disease. We should remember that the diagnosis entails three stages: the knowledge of the patient, the knowledge of his/her medical history, and his/her inclusion in a precise nosologic framework. “In the diagnosis we cannot avoid the risk of omission and confusion, as in the treatment we cannot exclude the iatrogenic risk or the failure”, says D. Dumitrașcu relating to the decision and responsibility in health care. (8)

The patients who come to the dental office to undergo specialised treatment are very different in terms of age, gender, medical knowledge, eating habits, profession, pathological personal history, and many other variables. Each patient is a specific entity and, considering the permanent changes related to the progress in medicine, biology, pharmacology, treatment methods with their local and general implications, the patient physical and biological
condition, as well as the patient particular behaviour, depending on education and other variables, individualised management is necessary. (3, 9)

In dental medicine, as in any other branch of medicine, the first contact with the patient is very important to establish the doctor-patient relationship. The first meeting should provide the dental practitioner with the opportunity to collect important information that allows for the knowledge of the patient, the optimal behaviour in the relationship with the patient, and the specific therapeutic attitude. The first meeting is also useful for the patient, as he/she can become confident in the doctor’s ability to competently manage the oral health problems. (2, 11)

A well conducted anamnesis, paying attention to the patient health problems and peculiarities, and an attitude adapted to the patient psychological pattern are some of the terms of a quality treatment. The patient health status correlated with his/her quality of life plays a major role in the decision on the treatment plan, representing a tool for understanding and shaping clinical practice and therapeutic success. (3, 7, 10)

The odontal treatment of a patient as well as the diagnosis of the majority of oral disorders seems to be a commonplace but, in reality, any patient, and especially those having special needs, i.e. the old, anxious, deviant behaviour ones, may become victims of injuries, accidents, treatment-associated complications, if the dental practitioner ignores the individual aspect of behaviour in the relationship with the patient. The prevention of any discomfort during the treatment becomes a necessity that can be met by a thorough clinical examination, conducted with tact and intelligence, asking simple and explicit questions, able to evince the possible health problems of the patient and to allow for the correct diagnosis of the disorder. (2, 3, 11)

The dental practitioner daily work is performed on patients who often come straight from work, being tired, who have irregular meals, and who are poorly investigated as far as biological constants are concerned, who are particularly sensitive due to the presence of the trigeminal nerve or the carotid sinus in the oromaxillofacial area. Because of these factors, there is the potential risk of medical emergencies in the dental office. That is why they should be known and prevented. (13)

A medical emergency in the dental office is an unpredictable condition, unexpected in terms of manifestation and duration, which can sometimes compromise the patient functional and vital prognosis. The dental practitioner is the one who, in the event of an emergency in the dental office, has the responsibility for the decisions made and their consequences. The practitioner is totally involved in such cases. That is why he/she should prove quick judgment and reflexes and competent action capacity to meet the patient present needs. (13)
All the mentioned facts have made us conduct a clinical-statistical study to allow us to detect the most common medical emergencies that may occur in the dental office during regular odontal interventions in relation to the overall health of the patient and other variables.

**Material and Method**

The research carried out by us consisted of a clinical-statistical study on a cohort of 200 patients who asked for odontal treatment at the Department of Restorative Odontotherapy of the Faculty of Dental Medicine, “Carol Davila” University of Medicine and Pharmacy in Bucharest. The patients were chosen randomly.

Before treatment, the patients underwent thorough anamnesis and clinical examination. To standardise the results, the data were stored in a standard individual file comprising, besides the identification data, the data provided by the patients relating to their current health status, the observations of the dental practitioner on the patients behaviour in the dental office, the patients previous experience in the field of dental treatments.

Based on age and gender, the patients were distributed as follows (fig. 1):

**Distribution of patients by gender and age**

![Figure 1](image-url)
According to the anamnesis conducted by the examiner, out of the total of patients, 157 reported a state of optimal health and 43 reported general conditions under observation and treatment, distributed by gender as shown in figure 2.

**Distribution of patients by gender and general health status**

![Figure 2](Image)

In patients in good health, we noticed a number of 10 (6.36%) medical emergencies of the total 157 patients, representing 4 (5.71%) of 70 male patients and 6 (6.89 %) of 87 female patients (fig. 3).
The patients who, during anamnesis, reported general medical conditions under treatment were distributed by gender as follows: 24 women and 19 men. According to the patients reports the conditions were (fig. 4):

- 12 patients with ischemic heart disease;
- 10 patients with high blood pressure (HBP);
- 3 patients with diabetes mellitus type II (DMII);
- 2 patients with chronic hepatitis;
- 3 patients with hypocalcaemia;
- 2 patients with epilepsy;
- 4 patients with depression or panic disorder;
- 2 patients with stabilised neoplastic diseases;
- 3 patients with a history of myocardial infarction;
- 1 patient with Parkinson disease;
- 1 patient with respiratory disorders.

In relation to age, 8 disorders were present in the patients in the 20-30 age bracket, 4 in the patients in the 31-40 age bracket, 10 in the patients in the 41-50 age bracket, 15 in the patients in the 51-60 age bracket, and 6 in the patients 60 plus years of age (fig. 5).
Distribution of patients having general medical conditions by gender and condition

Figure 4

Distribution of general medical conditions by age

Figure 5

The patients with pathological personal history were thoroughly examined. By the conducted anamnesis we tried to find out if the patients underwent medical treatment for the basic medical condition in accordance with the physician indications and the present state. Following the thorough
anamnesis, we postponed the dental treatment in 1 patient with chronic hepatitis who discontinued medication for 8 months and in 1 patient who presented logorrhoea and exaggerated psychomotor agitation, recommending that the patients should have the biological constants checked and ask for the medical opinion of the specialist who had them under observation.

On the other hand, we paid special attention to the behaviour of patients, their anxiety related to the manoeuvres that were to be carried out, possible stressors and other aspects. The patients with diabetes mellitus type II were scheduled early in the morning, after breakfast, and their treatment was limited to \( \frac{1}{2} \) h. When we considered necessary and appropriate, we indicated medication having slightly sedative effect.

Out of the 43 patients, in 8 cases small incidents occurred before, during or after the treatment carried out in the dental office. In those cases, the patients benefitted from treatment according to the protocol indicated in such cases. The age bracket of these patients is presented in figure 6.

**Distribution of accidents in patients having pathological personal history, by age**

![Figure 6.](image)

Their situation in relation to the presented medical emergency is shown in figure 7.
Medical emergencies in the patients having pathological personal history, by gender

Figure 7

Balancing the 200 examined patients, we can state that the number of medical emergencies presented by them before, during or after treatment was 18 (9%), of which 10 (5%) in clinically healthy patients and 8 (4%) in patients with pathological personal history (fig. 8).

The age bracket of medical emergencies occurred in clinically healthy patients and in those having pathological personal history

Figure 8
Discussions

The study allowed us to assess the prevalence of medical emergencies that may occur in the dental office during the course of common odontal treatment. They represent, according to our estimates, a reasonable share of 9% (18 cases) of the total of 200 patients examined and they can occur in clinically healthy patients as well as in those with general medical conditions, the percentage being 5% and 4% respectively.

The most common accidents were represented by lipothymia, which accounted for 5 of the 18 cases (27.7 %), more frequently in the 20-40 age bracket.

According to the literature, lipothymia has vascular causes, being the result of vasovagal reaction and the consequence of acute brain hypoxia of short duration. The triggers are varied, fear of the therapy that is to be performed being frequently incriminated, as the patient has no direct information or he/she has previous unpleasant experience related to therapy. If fear is added to pain, medicinal substances odour, noise during preoperative preparations or treatment, physiological characteristics (puberty, climax), “à jeun” state, fatigue caused by one or more sleepless nights, a minor therapeutic intervention may trigger transient lipothymia, without major importance, if immediate, correct and well conducted treatment is established. If it persists or it is associated with a severe general medical condition, it may sometimes become necessary to call the emergency service. (2, 13)

The hypocalcemic tetany seizure is specific to the young age and it is sometimes impressive because of the uncontrolled muscle contracture, neck stiffness, loss of consciousness, sometimes resembling a minor epileptic seizure.

In clinically healthy patients, but especially in those with psychiatric history, psychomotor agitation may occur with high frequency, being caused by oversensitivity, common to both genders. These patients can be easily detected during the anamnesis, as they present logorrhoea, psychomotor agitation, they are recalcitrant, uncooperative, tending to indicate some type of medical treatment and sometimes going so far as to refuse any treatment that is not approved by them. (1, 4, 6, 9, 12)

The bouts of high blood pressure, with a feeling of slight nausea and vomiting may occur in patients with a history of high blood pressure and may be determined by the state of fear of the dental treatment the dental practitioner performs. (6)

A patient known as epileptic who undergoes appropriate treatment is less likely to have an epileptic seizure in the dental office than a patient who
receives inappropriate or no treatment. In such cases, a simple noise made by
the specific dental instruments or the sight of a syringe ready for anaesthesia
may result in the onset of an epileptic seizure. In this case, the emergency
treatment should meet the protocol requirements. (3, 5, 6, 9)

Patients with diabetes mellitus type II, if properly controlled, can
receive dental treatment without special precautions. However, attention should
be paid to the associated risk factors and possible complications. Patients
with insulin-dependent diabetes can be treated under normal conditions when
the disease is well controlled and treated. In order to avoid hypoglycaemia
seizures, these patients have to be scheduled early in the morning, after the
administration of insulin and after breakfast, and the treatment should last a
short period of time. Moreover, in the dental office, there should be a source
of glucose that can be administered if needed. (3)

When the anamnesis was well conducted, the dental practitioner
patiently explained the treatment that was to be carried out, the patient
underwent correct treatment for the basic medical condition, cooperating
well with the dental practitioner and having appropriate medical education
in relation to the condition, medical emergencies in the dental office could be
avoided.

The dental practitioner can be an excellent professional, but it is not
enough for him/her to focus strictly on the dental disorder and often overlook
the essential roots of the disorders. This type of medicine is no longer sufficient.
The dental practitioner should consider the patient in a complex and complete
manner, adopting an integrated approach to the clinical cases. He/She has
or should have knowledge in all medical fields and guide the development
of therapeutic approaches that are appropriate to the patient overall health,
considering the population category the patient belongs to. (3, 9)

In dental practice, during almost every therapeutic intervention, some
medical emergencies may occur. They need to be resolved immediately, with
maximum competency, but it is equally necessary that the dental practitioner
should be able to anticipate their possible occurrence, correlating the dental
diagnosis with the patient general pathology. Thus the following question
arises: “Is the dental practitioner able to cope with all the situations
generated by the patient overall health? It is clear that this is not always
possible”. In this context, the idea of teamwork becomes natural, entailing
the medical interdisciplinary collaboration, between the dental practitioner
and the other specialists who have patients under observation and treatment, so
that the accidents and possible complications that may occur when common
odontal treatment is performed in the dental office can be avoided. (3, 13)
Conclusions

The medical emergencies in the dental office are not very frequent, but they can occur at any time, and the correct and rapid response of the dental practitioner can and should facilitate their professional management, as sometimes the patient’s life depends on it. Therefore, the dental practitioner should be properly trained in this regard and the patient health problems should be known. The responsibility for the decisions made and their consequences lies with the dental practitioner who has the professional, moral and legal obligation to prevent the medical emergency, to recognise and address it appropriately, and to know what it can and should be done as well as what it should not be done in the event it occurs.

Bibliography