

**Review Article****Medical emergencies in dental clinic**Rushil Shah<sup>1</sup>, Chandan Venkatesh<sup>2</sup>, Palak Patel<sup>3</sup>, Nikan Makadia<sup>4</sup><sup>1</sup>Ahmedabad dental College & Hospital, Ahmedabad-382115, Gujarat, India.<sup>2</sup>Institute of dental sciences and research institute, Bangalore, Karnataka, India<sup>3</sup>KLE VishwanathKatti Institute of dental sciences, Belagavi, Karnataka, India<sup>4</sup>College of dental sciences & Research centre, Ahmedabad, Gujarat, India

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**ABSTRACT**

Medical emergencies are the detrimental medical episodes that may be apparent in dental settings. Diligent understanding of the emergencies is absolutely necessary for all dental surgeons and auxiliaries. Appropriate diagnosis and subsequent care play a key role in the management of medical emergencies in dental clinic. The utmost purpose of this article is to shed light on the typical medical emergencies in dental setting and their subsequent management.

**Keywords:** Medical emergency, Dental clinic, Management**INTRODUCTION**

The clinical field of dental surgery involves indulging into a lot of subjects and patients who may have to undergo minor or major oro-facial surgeries. The dental diseases ranging from a carious tooth to a serious fatal disease like Ludwig's angina has potential to cause a medical emergency. The word emergency clearly depicts a medical condition that is in thorough need of an urgent attention and subsequent treatment. The medical emergencies, are most often, critical circumstances and must be known to all the dental practitioners in order to save the patient out of the situation.

Dr. Fast and some of his associates conducted a survey of close to 4000 dental surgeons. The survey was to indicate the clear incidence of number of medical and dental emergencies in a dental clinic. The results indicated that around 7.5-8% emergencies occur in the life of a dental surgeon in a decade [1]. Since the occurrence of emergencies have increased in recent times, it is necessary to be prepared for it. A thorough medical examination, backed by the patient's detailed history could sometimes help to prevent some emergencies. In spite of all the medical back up and detailed history, it is not always possible to prevent a medical emergency and hence it gets extremely important to be adequately equipped to treat it. The first and foremost step in most of the emergencies would be to do a CPR on the patient which would include

maintaining airway, examining the breathing and establishing circulation [2].

The commonly encountered medical emergencies are:

- Syncope
- Airway Obstruction
- Anaphylaxis
- Toxicity
- Asthmatic Attack
- Seizures
- Hemorrhage

**Syncope:**

Syncope can be defined as a temporary collapse and loss of consciousness which could happen due to any of the underlying diseases ranging from simple stress to a variety of severe diseases like adrenal insufficiency, hypoglycaemia and epilepsy [3]. Syncope has to be found to be extremely frequent with no sex predilection [4 & 5]. The most common cause of syncope is vasovagal, followed by cardiac syncope. The patient experiences tachycardia followed later by bradycardia, dilation of the pupils, perspiration and some nausea. Some patients have also have some visual interference. The basic step that could help to prevent development of the symptoms of syncope in patients is the adequate intake of food prior to any form of treatment, especially in patients with history of hypoglycemic shock. Once the symptoms of syncope are identified, the most fundamental step is to compensate the circulation by handling the patient in a supine position.

This is usually followed by checking the airway and pulse of the patient. If the patient has a history of diabetes, use of i.v. or i.m. glucose is advocated. Even though the signs and symptoms of syncope are so clear, only about 33% [6] and 50% [4] of the affected patients need to be hospitalized.

**Airway Obstruction:**

Airway Obstruction, even though not very common, is a fatal medical emergency that could be encountered in a dental clinic while performing simple procedures. It is usually associated with any foreign particle having an entry into the pharynx leading to subsequent obstruction of the airway. The most fundamental method to prevent the chances of airway obstruction involves meticulous use of rubber dams and ligatures [7]. When the oral cavity is completely isolated using a rubber dam, it prevents any foreign body from entering into the pharynx, thus preventing an airway obstruction. On encounter of an emergency situation of the airway obstruction, the primary principle is to clear the airway. The basic step involves getting the patient to a supine position and indulging thrusts to dislodge the foreign particle. A more definitive surgical approach would involve using procedures like laryngoscopy/cricothyrotomy.

**Anaphylaxis:**

Conventionally, anaphylaxis has been elucidated as an allergic response that is quick on onset and potentially fatal [8&9]. So in most cases, the allergic response is due to presence of an allergen. In dental, the element most commonly causing an anaphylactic Type I reaction is the latex used in the materials like rubber dam and hand gloves [10]. The symptoms stretch from simple rash to severe symptoms like urticarial and subsequently angioedema. The primary treatment of a patient with symptoms of anaphylaxis involves positioning the patient in a supine position with raised lower limbs, followed by proper supply of oxygen and administration of epinephrine.

**Toxicity:**

A lot of drugs and dental materials can be potentially toxic to patients. The toxicity from local anaesthesia is fairly common which could result due to use of lidocaine or due to use of vasoconstrictor like epinephrine. Local anaesthetics are vasodilating agents which could potentiate the overdose of the drug. Along with the amount of LA, the rate at which it is administered also plays an important role. A faster injection would usher high levels of LA in the blood which increases the dose and result into toxicity. The common symptoms of toxicity involve drowsiness,

dizziness, poor orientation along with a metallic taste [11]. The initial management of the condition would involve maintain airway and providing adequate oxygen. Following this, an i.v. bolus injectable 20% lipid emulsion is used.

**Asthmatic Attack:**

Asthmatic Attack, also referred as Status Asthmaticus, is characterized by an acute episode of bronchospasm. Asthmatic attacks have been now delineated as a sincere world-wide threat which has exponentially increases over the last 20 years [12]. A patient suffering from asthmatic attack usually presents with elevated pulse along with complain of breathlessness and wheezing on expiration followed by the tightness of the chest. The basic management of all cases of asthmatic attack includes administration of Beta 2 adrenergic agonist like salbutamol followed by administration of oxygen. However, the dose and the frequency of administration vary on the severity of the attack [13]. Theophylline could be administered if the salbutamol doesn't improve the condition.

**Seizures:**

Epilepsy can be described as a pathological condition which is characterized by the peril of perennial seizures, commonly encountered by the dental surgeons [14]. Most of patients who experience seizure in dental setting usually present with a history of seizures in the past. So for prevention, a proper medical history and careful clinical evaluation play a vital role. Moreover, an unconscious patient should be placed in supine position. The patient's airway must be clear and measure to prevent tongue biting must be taken. If patient remains unconscious, measures to administer I.V. diazepam must be taken.

**Haemorrhage:**

Bleeding disorders, leading to haemorrhage in dental patients, are usually due to coagulation factor associated diseases like von-willebrand disease or haemophilia. History plays an extremely important role to prevent any sort of uncontrolled haemorrhage in dental surgeries [15]. In a case of excessive bleeding, suturing the site and use of pressure packs can be administered. Use of Tranexamic Acid in the form of intravenous administration could be used in severe cases.

**CONCLUSION**

Medical Emergencies are inevitable but careful understanding and precautions could help prevent it.

The dentist surgeons along with all dental auxiliaries need to be heavily trained for any kind of medical emergency encountered. Appropriate availability of drugs and equipment is necessary to effectively manage any situation. Continuing education and efforts to effectively manage emergencies should be undertaken by all dental practitioners and auxiliaries.

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