Medical emergencies in dental practice

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Abstract

Patient safety and risk management are increasing priorities in dental practice today. Ensuring that dental care professionals are prepared and equipped to adequately manage the common medical emergencies that may occur is an expectation of the public, and increasingly demanded by the inspecting and regulating bodies in health care. Girdler & Smith (1999) estimated that the average dentist might expect to encounter some form of medical emergency during their practice as often as every 16 months, however there is limited current evidence available as to the real prevalence of medical emergencies in dental practice. This is, in part, due to the lack of reporting mechanisms for both dental practitioners and the emergency services.1 Equipment for the management of medical emergencies can improve a situation, however when used incorrectly, or if unavailable, it can have a detrimental impact on the outcome. Dental care practice environments should have the basic necessary equipment to appropriately enable the dental care professionals to respond to emergencies until the arrival of the emergency services.2 Further research is required on the compliance to the recommendation relating to equipment made in 2006 and the actual current prevalence of emergency situations that occur in dental practices in the UK.3

Guidance

The General Dental Council document ‘The First Five Years. A Framework for Undergraduate Dental Education’ published in 2002 states that all dental practitioners should be able to diagnose and confidently manage medical emergencies, and be competent in resuscitation techniques.2 Whilst there has always been this duty of care to patients, previously there has not been adopted guidance on what exact knowledge, equipment and training dentists require to safely, ethically and legally fulfil their obligations. This is now no longer the case following publication by the UK Resuscitation Council of ‘Standards for Clinical Practice and Training for Dental Practitioners and Dental Care Professionals’ in July 2006, and last updated in November 2013.4 This document has been developed by a multi-disciplinary working group with backgrounds in dentistry, resuscitation and anaesthesia. It details clearly on areas such as medical risk assessment, assessment of the sick patient, specific emergency drugs and equipment which should be immediately available and initial treatment of the sick patient.

It states amongst other things that:

1. All dental care professionals should have training in cardiopulmonary resuscitation (CPR), basic airway manoeuvres and the use of an Automatic External Defibrillator (AED).

2. All clinical areas must have access to an AED and that there should be regular practice and scenario based exercises of simulated emergencies.

3. Emergency response and resuscitation skills must be updated annually

Medical emergencies

There are a number of common medical emergencies for which there is the expectation that any member of the dental practice team should be able to respond.5 These include chest pain and cardiac arrest; anaphylaxis; hypoglycaemia (low blood sugar); epileptic fitting and fainting; asthma. There are common principles in the management of these medical emergencies as well as some specific measures.

Medical emergency drugs in the dental practice setting

It is an accepted principle that dental practice settings should have a minimum level of emergency equipment and medications in order to effectively respond to potentially life threatening medical emergency situations that may arise, in order to support patients until the arrival of the emergency services. The need for the ability to respond and ensuring that the correct medications are available was highlighted by the coroner’s findings in the 2011 death of a patient in a dental chair in Brighton.6

Guidance and regulation

Prior to 2006 the emergency drugs that were held in the dental practice setting were locally determined with no standardisation or central guidance. In 2006 the Resuscitation Council (UK) published the first UK wide guidance for dental care professionals as to the range of emergency medications that are required to be held by dental practice settings to enable practitioners to respond appropriately to medical emergencies.4 The guidance was endorsed by the General Dental Council, however it was only a recommendation and this guidance was not binding for dental practices.

The use of intravenous drugs in a dental practice setting is not encouraged. Intramuscular, inhalational, sublingual, buccal and intranasal routes are all much easier ways to administer drugs in an emergency. Wherever possible drugs in solution form should be held in pre filled ready to administer syringes.7 Portable oxygen cylinders should be of sufficient size and also allow adequate flow. In a medical emergency high flow oxygen (> 10 litres per minute) should be delivered through the correct oxygen mask until an ambulance arrives. A size ‘D’ cylinder holds 340 litres of oxygen and therefore at 10 - 15 litres per minute will last approximately 25 – 30 minutes.

Recommended common medical emergency drugs that should be available are now made by the British National Formulary 2013 and only referred to in the Resuscitation Council 2013 guidance.8,9 The drugs that should be available to support a clinical emergency in a

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dental setting are as follows:

- Aspirin 300mg (dispersible)
- GTN (Glyceryl trinitrate) spray
- Adrenaline 1mg/ml 1:1000 IM
- Salbutamol aerosol inhaler 100 mcg/actuation
- Glucagon 1mg IM
- Oral Glucose Gel / powder / tablets
- Midazolam 5mg/ml or 10mg/ml (buccal or intranasal)
- Oxygen cylinder (minimum D size)

These drugs should be checked regularly to ensure that they do not pass their expiry dates. All drugs must be kept in their original packaging as dispensed or purchased. This is a legal requirement and drugs should never be decanted into alternative containers.10

In April 2011 the Care Quality Commission commenced regulation of the dental healthcare sector and within their assessment framework general principles relating to the provision of medical emergency medication came into force. Standard 9H of the published guidance states that “People who use services receive care, treatment and support that: ensures medicines required for resuscitation or other medical emergencies are accessible in tamper evident packaging that allows them to be administered as quickly as possible.”11

An example of a high impact situation used by the Care Quality Commission under the Medicines Management standards was out of date adrenaline for the use in anaphylaxis as a result of no clear checking and recording process.12 With regulation comes the increased need to ensure that dental practices are checking emergency medications on at least a weekly basis both to ensure that they are present and also that they are in date. Processes should also be in place for a means of rapid replenishment should emergency medications be used or for those that are coming up to their expiry. Responsibility for checking resuscitation equipment rests with the individual dental practice where the equipment is held. This process should be designated to named individuals and checking should be the subject of local audit.2

Training

Traditionally the focus of emergency training has been very much on adult basic life support to the exclusion of other equally important elements, this is not in keeping with the evidence which suggests that the emphasis should be on adequate management of medical emergencies and basic life support.13 Whilst it is vital that every member of the dental practice can commence adequate and appropriate resuscitation to a patient in cardiac arrest, it is also important that they can also manage common medical emergencies.14,5 Early correct intervention in a medical emergency can prevent further deterioration and possibly death. The rarity of medical emergencies in the dental setting makes it even more vital that all members of the team receive training relevant to their role in a medical emergency.13

The use of algorithms as an aid memoire is often helpful for those clinical areas where the application of these skills and knowledge is infrequently applied. An additional method of reinforcing the skills and knowledge necessary to manage the common medical emergencies is to undertake mock scenarios within the clinical setting.9 This allows for staff to experience the complete process including seeking help, retrieving relevant equipment and effective team working. Often it is only by recreating an emergency situation that risks and obstacles become apparent and steps can be taken to mitigate these should a real emergency arise.

Frequency of training

It is generally accepted that those working in a healthcare environment where there is an expectation that staff can respond and manage medical emergencies should receive regular training: dental care professionals are no exception to this guideline. The Resuscitation Council 2013 recommends that staff receive refresher training on an annual basis.7 Girdler & Smith (1999) found that approximately 59% of dentists underwent resuscitation training every 12 months.3 However there was a significant number who did not receive training that frequently and therefore fell outside the guidelines.

The GDC requires registered professionals to undergo 10 hours of verifiable CPD in the management of medical emergencies in a cycle, ie 5 years. There is a weight of evidence that supports training more frequently than annually, however given the costs and resource requirements the adoption of annual training appears to be a compromise to re-establishing emergency management skills of the dental team.

Conclusion

The publication and adoption of clear evidence based guidance which informs dental practitioners as to the level of skills and equipment necessary to respond to medical emergencies should ensure that the standard of care delivered to patients is of the highest level. Dental Hygienists and Therapists are increasingly undertaking autonomous roles and the need for unambiguous standards to support their ability is vital in an ever changing clinical setting. The lack of current evidence set and data recording clearly demonstrates the need for further research into this area of the dental care environment, which whilst rare is associated with a high level of anxiety by dental care professionals at all levels.
References


5. Department of Health 2003


Further reading


About the author: Chris is currently the Managing Director of A to E Training & Solutions Ltd a leading provider of life support and resuscitation training programmes across the UK. Chris qualified in 1995 as a Registered General Nurse and worked in orthopaedics and emergency departments in several London hospitals. In 1998 he obtained his Accident & Emergency Nursing course (ENB3) and then qualified as a Children’s Nurse from City University in 2000. In 2007 he received his Masters In Public Administration from London Southbank University and will be starting a legal conversion course in 2014 again at London Southbank University. He is an instructor in the following Resuscitation Council provider courses: Advanced Life Support, Advanced Paediatric Life Support, European Paediatric Advanced Life Support, Generic Instructor Course.

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