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ONTARIO DENTIST

The Journal of The Ontario Dental Association

Vol. 58, No. 7, July, 1981

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Medical emergencies in dental practice: are you prepared?

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A life-threatening emergency in the dental office is a far greater likelihood in the 1980's than it would have been 20 years ago.

There are more patients being treated on an ambulatory basis who, in the past, would have been hospitalized. These patients are not only the elderly but also the younger person on potent medications.

The prevention of serious problems depends on the dental practitioner being aware of current practices involving medical treatment of his patients, the effect of various medications and drug interaction. In spite of the most careful attention to these details, an emergency situation threatening the life of a patient can occur. Are you prepared? "If you were in need of emergency medical care, would you want it to be in your dental office and managed by your dental team?"[1]

The purpose of this paper is to give an overview of the identification and management of serious office emergencies. We will also suggest a simple technique for constructing an emergency kit. Further study of the appropriate texts and participation in pertinent continuing education courses are necessary.

Certification encouraged

Basic ground rules should be followed:

1. All staff should be recently certified in 'Basic Life Support'.
2. All staff should be trained to recognize and understand the significance of the early signs and symptoms of a pending emergency.
3. Nursing personnel, receptionist, and doctor should develop a coordinated plan of action to be initiated once an emergency has been declared.
4. A basic emergency kit must be available and must be kept current by a regular, validated check-list.
5. There must be periodic emergency practice sessions.

It is strongly recommended that every dentist obtain certification in basic life support (CPR—Cardiopulmonary Resuscitation Training) and that proficiency in CPR be maintained. This skill, along with a sound knowledge of the use and application of emergency drugs, will give the dental practitioner the confidence and ability to stabilize his patient when faced with a medical emergency.

A team approach wherein the dental assistant and receptionist are included will enhance treatment efficiency. When faced with an emergency, the trained dentist with his prepared team (*see Table I*) can manage virtually any adverse reaction with confidence.

Team work essential

The team concept is the most effective way in dealing with emergencies. Within it are incorporated definite duties for specific personnel. The dentist directs the team and pre-assigned duties are shared with assistants, all of

TABLE 1

The team concept

Member	Duties
Dentist	• Recognition and diagnosis of medical emergency • Initiation of CPR • Administration of drugs
1st Assistant	• Bring emergency kit • Monitor vital signs • Preparation of drugs for administration as instructed by dentist • Assist in CPR • Regular checks of kit regarding drug expiry dates and emergency equipment function.
Receptionist	• Extra assistant at scene of emergency • Monitor vital signs as needed • Assist in CPR as needed • Summon medical assistance as directed

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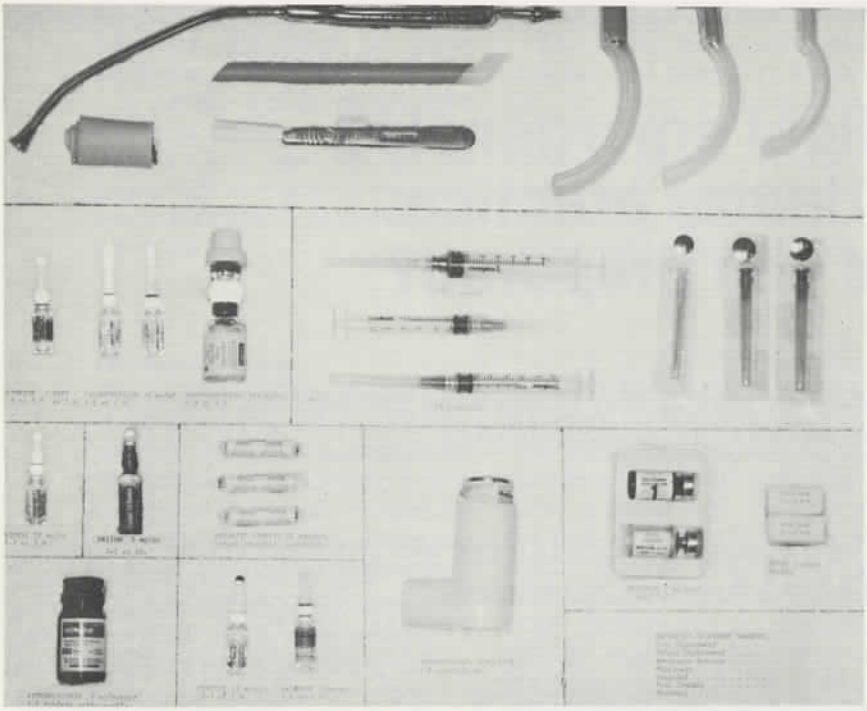

Figure 1: Emergency kit items embedded in styrofoam slab.

TABLE 2

Recommended contents for emergency kit[1,3]

Name	Dosage Form	Route	Actions and Indications
Epinephrine	1:1000 solution in 1 ml ampoule (.5–1.0 cc)	SC	Acute allergic reaction
Diazepam	5 mg/ml (2 ml)	IM or IV	Anticonvulsant (Epileptic seizure)
Chlorpheniramine (Chlortrimeton)	10 mg/ml (1 ml)	IM IV	Antihistamine (Allergic reaction)
Meperidine (Demerol)	50 mg/ml (1 ml)	IM	Analgesia for severe chest pain suspected with heart attack
Naloxone (Narcan)	0.4 mg/ml (1 ml)	IM, SC or IV	Narcotic antagonist for reversal of narcotic induced respiratory depression
Methoxamine (Vasoxyl)	20 mg/ml (1 ml)	IM or IV	Vasopressor for severe and persistent drop in blood pressure below 60 mmHg systolic
Hydrocortisone Sodium succinate (Solu-Cortef)	50 mg/ml (2 ml)	IM or IV	Corticosteroid for acute adrenal insufficiency and the acute allergic reaction after use of epinephrine
50% Dextrose in water	50 ml	IV	Anti-hypoglycemic for insulin shock in the unconscious patient
Glucagon	1 mg/ml (1 ml)	IM	Anti-hypoglycemic for insulin shock in the unconscious patient (as alternative to 50% Dextrose in water)
Sugar cubes Orange juice		by mouth	Carbohydrate source for insulin shock in the conscious patient
Aromatic ammonia	silver-grey vaporole (1.3 ml)	nasal	Respiratory stimulant (Syncope)
Salbutamol (Ventolin) inhaler	inhaler	by mouth	Bronchodilator for the acute asthmatic attack
Nitroglycerine (Nitrostat)	0.3 mg tablets (2 tablets)	sub-lingually	Vasodilator (angina)

Miscellaneous: Blood pressure cuff, stethoscope, syringes and needles, Cricothyroid membrane puncture apparatus, oxygen

whom are knowledgeable in CPR.

Acquired skills are lost if not used so it is recommended that emergency drill practice, simulating a variety of situations, be held on a regular basis.

A home-made emergency drug kit is advocated because it can be tailor-made to meet individual requirements. It also allows the dentist to become intimately familiar with the drugs he places in the kit. Simplicity is essential!

The following items are required:

- Styrofoam slab, 14'' x 14'' x 1-1/2''
- Scalpel handle and No. 10 blade
- Drugs
- Labels indicating name of drug, indicated use, route and quantity of administration.

These steps are recommended when constructing your kit:

1. Place items on the styrofoam slab in a convenient, orderly manner. Allow sufficient space between items to accommodate labels. Group them with respect to common purpose (e.g. agents for allergies, cardiovascular problems, etc.)
2. Outline each item with a pen.
3. Using a scalpel blade, cut along these outlines and remove styrofoam to a depth sufficient to retain each item.
4. Place the respective agents into their depressions and affix labels. (*See Figure 1*).

Weekly review recommended

This emergency kit must be easily accessible and periodically reviewed. A chart (*see Table 2*) has been provided which lists a variety of drugs, dosages, and indications for use. An office assistant should review the kit weekly to ensure that the drugs have not expired. A separate book should be kept for this purpose and the entries should be signed by the assistant. A list of telephone numbers including nearby physicians, closest hospital emergency room, police and fire departments, should be taped on each telephone in the office.

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