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Proactive Initiatives of Dental Practitioners to Manage Emergency in the Dental Office

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Received: May 16, 2018; **Published:** June 27, 2018

Abstract

Dentistry is a branch of medicine consists of the study of prevention, diagnosis and treatment of diseases, disorders and conditions of the oral cavity, dentition, oral mucosa and of adjacent and related structures and tissues, particularly in the maxillofacial (jaw and facial) area. To be a dental practitioner, it requires medical specialty of stomatology along with general physic. Dental treatments are carried out by a dental team consist of a dentist and dental auxiliaries such as dental assistants, dental hygienists, dental technicians as well as dental therapists. Most of the dentists either work in private practices, dental hospitals or institutions i.e. prisons, armed forces bases etc. Along with a large team and various anesthetics and medications, dental practitioners have to work with different instruments too. In this huge arrangement of workforce and ailing cases; there can happen any accident or arise any emergency situation at any time. To cope with any awkward situation, dental practitioners should have a possible back up plan or written emergency management program. The whole dental team should practice the backup plan to increase the skill of emergency management which can help them to avoid the risk of any serious accident or mass disaster. Here in this paper we have tried to accommodate most of the possible medical, corporate and environmental emergency situations and their management which may arise at any time in a dental office.

Keywords: *Dental Practitioners; Dental Office*

Introduction

An emergency can be defined as a sudden, unexpected or impending situation that may cause injury, loss of life, damage to the property and interference with the normal activities of a person or firm and which therefore requires immediate attention and remedial action [1]. Most emergencies require urgent intervention to prevent a worsening of the situation though in some situations mitigation may not be possible and agencies may only be able to offer palliative care for the aftermath. Being a branch of medicine 'dentistry' has a vast impact on human life. In one hand it is related with having food by mastication, foundlings of speech on the other hand it is invariably related to the aesthetic part of the face. Human anatomy has showed us the different parts of the human mouth. It has both hard and soft parts inside. It is consist of lips, tongue, teeth, vestibule, soft palate, hard palate and floor of the mouth. If we want to do an intensive survey; we can see it is internally a composition of maxilla, mandible, temporomandibular joint, salivary glands, sinus, vein, artery and nerves. And in terms of category of the patients it is important to keep in mind that there is no definite person who can't be the victim of the dental problem. Both children and adults can be affected and may visit dental office. There may be young children with different dentition cases, pregnant women with teeth and gingival problems and old people with different periodontal problems along with other prevailing sicknesses. The phrase "dental treatment" is a pair of words which encompasses a wide range of dental care procedures. Essentially, in

most cases of dentistry the treatment refers to the conservative dental care. There are different stages and verities of dental treatment performed due to different dental or oral problem of the patient. It can vary from scaling, pocket curing, topical fluoride treatment, root canal treatment, extractions, dental implant and other different critical treatments. As a result any kind of medical emergency can develop to the patient at any stage of the treatment. Simultaneously to the medical emergencies there might be some environmental, ethical or corporate emergencies in the dental office. So it is really important and prudent to learn and practice the emergency management procedure in the dental workplace to prevent any disaster to occur. To perform the practice in a successful way a dentist must take care of all the aspects of unforeseen incidents to avoid any threatening conditions.

Protocol

Every dental and medical practice should have a protocol in place for dealing with a medical emergency. The General Dental Council of London states that

1. At least two people to be available to deal with medical emergencies when treatment is planned to take place.
2. All members of staff, not just the registered team members, should know their role if a patient collapses or become unwell.
3. All members of staff who might be involved in dealing with a medical emergency should be trained and prepared to deal with such an emergency at any time.
4. Team members should practice together regularly in a simulated emergency so that they know what to do if an emergency arises.
5. New member of staff should take part in an induction programme which incorporates resuscitation training [2].

It is recommended that all team members complete a course of basic life support training once a year. Moreover it is therefore important that practitioners should keep themselves updated about the knowledge on medical emergencies so that they can ensure the immediate action when an emergency arises.

Prevention is better than cure

We should always keep in mind that prevention is always better than cure. So to ensure a foolproof protection, a comprehensive medical history should always be completed for each patient and this should be checked and updated at every appointment. Maintaining accurate documentation of a patient's medical history allows the practitioner to identify which patient is 'at risk' prior to treatment. In case of elderly patients who are counted as the senior citizens, usually to be taking a large number of medications on a daily basis, which is called polypharmacy. In case of those patients the dental practitioner should maintain a significant treatment procedure in co-operation with their health status. More over patient with pregnancy, lactation and other physiological or pathological conditions are more complex to treat.

While dealing with a medical emergency the practitioner should:

1. Stay calm and ensure that the practitioner and the staff are safe
2. Look at the patient for general observation
3. Deploy the 'Emergency Management Algorithm'- P-A-B-C-D-E-

Position: Keep the patient in 'Supine or Trendelenburg' position. It means: the body is laid supine or flat on the back with the feet higher than the head by 15 - 30 degrees. The goal of this position is to maintain the blood flow to the brain. The practitioner has to make sure that patient's hands are down by his sides and his back and legs are straight.

Airway: The airway should be look for the signs of airway obstruction and breathing problems. If there is any exudates like vomit, blood etc. inside or around the person's mouth, put on a glove and remove it to clear the airway before changing the patient into 'Tren-

delenburg position.' We have to take a moment to push the shoulder of the victim down gently which will expand the width of the trachea and helps to keep the jaw lifted. After that the practitioner has to place one hand under the chin and tilt the patient's head backward toward the sky. The chin should end in a slightly lifted position, as if he was sniffing the air [3].

If the airway is obstructed by the victim's tongue, by vomit or other body fluids or any removable matter, get it out of the mouth with quick swipes with two or three finger in the mouth. For this turn the victim's head to one side to assist in the removal. If not removed then try the jaw thrust method. By this method the practitioner has to bow down or crouch above the head of the victim, looking down toward the toes. Grasp the jaw gently but firmly with both hands, so that practitioner can curve his fingers into the soft flesh of the chin. Gently lift the jaw to the sky without moving the rest of the head. This will help the tongue to fall to the floor of the jaw rather than setting in the airway.

We have to avoid pushing any matter further down the trachea and use sweeping motions rather than digging ones.

Breathing: The practitioner has to look for the obvious signs of breathing. There are few obvious signs that the victim is breathing. The practitioner should look for the rise and fall of the chest as the patient takes oxygen into his lungs, try to listen for respirations. If there is not a rise of the chest, try to re-position the air way a little in either direction. May be the process done earlier was not enough to open the airway. If the patient is gasping for breath or breath poorly, the practitioner has to treat this as not breathing and check for circulation [3,4]. Along with these measures the practitioner has to place his hand near the nose and mouth to see if he can feel any breath. If don't, he has to lean his head down close to the patients mouth and feel for breath on his cheek and listen for any inhales or exhales. If he can hear normal breathing there is no need to CPR. If not then CPR should be performed. For adult the CPR compression rate should be between 100 and 120 per minute. But still ambulance should be called if the patient does not wake up.

On the other hand if the patient starts breathing he should be turned over and roll onto his side so there is less pressure on his chest. This will help him breath better. It proves that the process of opening the airway was possibly enough to start the victim breathing again.

Circulation: After checking the breathing the practitioner has to check to feel the circulation. At first the practitioner should check if the patient appears to have central cyanosis which makes the lips and tongue appear blue. After that, on the lifted area of chin, the practitioner should place his index and middle fingers to the groove of neck, just beneath the jaw and to the right or left of the voice box or Adam's apple. Slip the fingers into the groove there. This is the carotid artery and should provide a strong pulse if his blood is circulating well. But if the pulse is weak or there is no pulse the person is in trouble and needed to seek medical help as soon as possible [4].

If the victim is not breathing and his pulse is weak or nonexistent, the practitioner needs to perform CPR.

Disability: Check for the consciousness of the patient. The practitioner should make a rapid initial assessment of the patient's consciousness level.

- Is the patient alert?
- Dose he/she respond when the practitioner talk to them?
- Dose he/she respond to painful stimuli?
- Is he/she unresponsive to all stimuli?

Exposure: To assess or provide emergency treatment for a patient the practitioner may need to loosen or remove some of the patient's clothes. This will also allow seeing any rashes. The patient's dignity should be respected and heat loss minimized.

The Drug Kit: The following drugs should be kept for emergency management in a dental office. Each staff member should know

where the drug kit is located.

1. **Epinephrine:** Epinephrine (Adrenaline) injection helps to treat serious allergic reaction and asthma which does not respond to its drug of first choice i.e. albuterol or sulbutamol. It is not a medical treatment, used only for emergency purpose. It has two formulations 1:1000 and 1:10000 for intravenous injection. Auto injector systems are also present for intramuscular use i.e. EpiPen[a].

2. **Oxygen:** Oxygen is used in emergency medical treatment to treat for every emergency except hyper-ventilation. It should be available in a portable source, ideally in an "E" size cylinder which holds over 600 liters. This should allow for more than enough oxygen to be available for the patient until resolution of the event or transfer to a hospital[a].

3. **Injectable Antihistamine:** Injectable antihistamine should be kept in the emergency drug kit for the management of allergic reactions, rash etc. there are two injectable agents may be considered named; diphenhydramine and chlorpheniramine for the emergency management[a].

4. **Sugar/ cube sugar or oral carbohydrate:** It is used to treat hypoglycemic patients in case of diabetic crisis.

5. **Ammonia inhalants:** It is used to revive someone suffering from syncope (loss of consciousness, vasovagal episode and a common form of fainting). It is a strong stimulant and used to smell under the nose [5].

6. **Atropine:** It is one of the leading emergency drugs which are used to treat cardiac conditions. Injections of Atropine are used to treat bradycardia, asystole and pulseless electrical activity (PEA) in cardiac arrest [6].

7. **Diazepam:** It is an emergency drug used to treat the allergic reaction to valium. It is for the symptoms like difficult breathing, swelling of face, lips, tongue or throat.

8. **Hydrocortisone:** It is a class of medication called corticosteroids. It is the steroidal drug used to treat the symptoms of low corticosteroid level (lack of certain substances that are usually produced by the body and needed for normal body functioning). And in the symptoms when nerves do not function properly or body attacks its own organs [7].

9. **Inhaler-Albuterol:** It is the beta- agonist bronchodilator used for treating acute asthma and bronchospasm. Adult dose is 2 sprays and pediatric dose is 1 spray, repeated as necessary[c].

10. **Nitro spray/nitroglyceride tablets:** This medication is used to prevent chest pain in angina or myocardial infarction. It works by relaxing and widening blood vessels so blood can flow more easily to the heart [8].

11. **Aspirin:** Aspirin is the blood thinner that prevents blood coagulation in the arteries and reduces the risk of death and limits the damage of heart attack. The lowest effective dose is not known with certainty but a minimum of 162 mg should be given immediately to any patient with pain suggestive of acute myocardial infarction.

12. **Anti- diarrheal medication:** It is the medicinal agent to restore hydration level.

13. **Syrup of Ipecac:** This is the drug used to induce vomiting if advised by the poison control center in case of poisoning.

14. **Laxative:** It is the drug to treat constipation. It increases stool motility, bulk and frequency.

15. **Activated charcoal:** It is known as the universal antidote. It works by trapping toxins and chemicals in the gut, preventing their absorption. It is not absorbed by the body; it can carry the toxins bound to its surface out of the body in feces [9].

16. **Paper bag:** It is used for emergency breathing. When there is an increased level of oxygen which is more than the body needs, the result is known as respiratory alkalosis (high pH). One of the most common causes is hyperventilating. The point of breathing into a bag is to "re-breath" the exhaled carbon dioxide (CO_2) in the hope of bringing the body back to a normal pH level [10].

17. **Morphine:** It is indicated for the management of severe pain which occurs with a myocardial infarction. It works as the analgesic of choice for this purpose[c].

18. **Nitrous Oxide:** It is a reasonable second choice if morphine is not available to manage pain from a myocardial infarction. For management of pain it should be administrated with oxygen, in a concentration approximating 35% or titrated to effect[a].

19. **Laryngoscope:** It is used for the establishment of an effective airway and pulmonary ventilation in treating cardiac or respiratory arrest.

20. **Oral airways:** It is a medical device used to maintain or open patient's airway. It does this by preventing the tongue from covering epiglottis which could prevent the person from breathing.

Now we look at some specific medical emergencies during dental treatment:

Airway emergencies

1. **Airway Obstruction:** It may occur due to choking. It causes coughing and spluttering. Afterward it may proceed with the 'crowing sound' of the patient. Finally the patient stats to have difficulty in breathing and the breathing may become noisy or wheezing. In severe cases the patient may start to experience paradoxical chest or abdominal movements and loss of consciousness [11]. And they could deteriorate rapidly and become unable to speak. Eventually the patient may die.

   Management: The initial treatment is to sit the patient upright or straight and ask the patient to cough vigorously. Remove any visible bodies from the mouth or pharynx. Aspirate with suction if necessary. If the patient is not recovering the practitioner should apply sharp blows to the back and if necessary perform abdominal thrusts to dislodge any obstruction. Simultaneously the practitioner should use laryngoscope for direct visualization and remove any foreign bodies with Magill forceps. If the patient becomes unconscious the practitioner must call ambulance and apply the P-A-B-C-D-E approach [11].

   If the foreign body still impacted then the practitioner should attempt 'Heimlich Maneuver' before starting emergency expert medical intervention.

   Prevention: This accident can be prevented by adequate protection of the oropharynx and establishing ligatures around small dental objects.

2. **Acute Asthma:** Acute asthma may show some sudden symptoms i.e.; coughing, wheezing, chest tightness, stidor (a pitched breath sound), cyanosis and dyspnoea.

   Management: At first the patient must be reassured about the recovery of his sickness and sit upright with arms forward. Then administer one puff from patient's own inhaler and followed by giving oxygen to the patient. Then adrenaline should be administrated following short acting beta agonists and that is followed by the application of bronchodilator. Establishment of airway is aim to be achieved.

Prevention: The practitioner should use prophylactic bronchodilator. During treatment every kind of precipitating factors should be avoided. Before starting the dental treatment it should be confirmed by the patient that he/she has taken asthma medications properly. Any kind of narcotics should be avoided and most importantly the practitioner should relief the patient from stress and anxiety, keep him/her mentally clam and reassure the patient about the quick recovery.

3. **Hyperventilation:** Hyperventilation will show some symptom of occurrence like: restlessness of the patient increased respiratory rate, increased depth of respiration, light headedness, tingling in hands and feet, carpal-pedal spasm and loss of consciousness.

   Management: The practitioner has to stop immediately and clear all objects from the mouth. After that verbally calm the patient and re-breath CO_2. To carry out re-breath procedure use paper bag or face musk or hand in case of emergency. Then administrate beta- blocker and give the patient stress reduction therapy by applying Diazepam 5 mg IV or Midazolam 2 mg IM/IV.

   Prevention: To prevent hyperventilation it is important to reduce the stress of the patient. If there is any chance of hyperventilation apply sedative to the patient before starting the dental procedure.

Cardiovascular emergencies

1. **Angina:** Angina is a type of chest pain caused by reduced blood flow to the heart. The symptoms of angina are chest pain or discomfort, possibly described as pressure, squeezing, burning or fullness, pain in the arms, neck, jaw, shoulder or back accompanying chest pain, nausea, fatigue, shortness of breath, sweating and dizziness [12]. In acute cases pain in the chest become stabbing in nature. These symptom need to be evaluated immediately by the practitioner and take action according to the symptoms.

   Management: At first practitioner should keep the patient in a comfortable position [13]. It is also known as Low Fowler's position. It is the position in which a patient is positioned on their back with the head and trunk raised to between 15 to 45 degrees, although 30 degrees is the most frequently used bed angle. This position is useful in promoting lung expansion-allow expansion and ventilation. Then give Nitroglycerin 0.4 mg sublingual tablet or spray and this medication should be repeated every 5 minutes for three times. Then oxygen should be administrated. After that the patient must be taken to the emergency care department of the hospital by the ambulance as soon as possible.

2. **Myocardial Infarction:** When the angina is prolonged or not responsive to the Nitroglycerin is it considered as the Myocardial Infarction has happened to the patient. Along with that some physical symptoms would be presented i.e.; pallor, weal pulse, shortness of breath and unconsciousness.

   Management: With the Nitroglycerin tablet/spray patient should be taken to the hospital for emergency management for MI as early as possible with the administration of oxygen.

CNS emergencies

1. **Syncope:** Generally it is known as fainting. It is a common emergency situation which may occur any time and at any place. So it is important to know the possible causes of fainting or syncope. Here we will discuss about the causes of syncope. 'Blacking out' or 'Syncope' is the temporary loss of consciousness followed by the return to full wakefulness. The prime reason of syncope is decreased blood flow to the brain [14]. It occurs when heart rhythm changes, any structural problem with the heart, abnormalities with the heart valves, sudden cardiac death, postural hypotension, disrupted balance between

the adrenaline and acetylcholine, anemia, dehydration, orthostatic hypotension, vertebrobasilar artery disease, electrolyte imbalance, some medications, pregnancy etc. The symptoms of syncope are: patient feels giddy, feels nauseous, patient appears sweaty and face appears pale and the patient experience visual disturbance; sometimes sees spots and feels weak. Along with these signs patients express anxiety and the pulse is fast and feeble at the wrist and in most cases the patient will have a ringing sound in their ears [11].

Management: The practitioner should stop the dental treatment at once and remove the objects from the mouth. Then patient should obtain the 'Trendelenburg Position' and raise the patient's legs; about 8 - 12 inches above their head. It will increase the blood flow towards the brain. The patient should be taken to the emergency care of the hospital so the practitioner should call for ambulance. If the patient is standing he/she should be prevented from falling. Then any tight clothing around the airway should be relaxed to simplify the breathing. At this time ammonia inhalants should be placed under the nose of the patient to smell for strong stimulation and a damp cold compress should be applied to the patient for further relief. Reassure patient of his/her quick recovery.

If the patient has already fainted: achieve the P-A-B-C-D-E approach as soon as possible. After that the patient should be transferred to the emergency unit of the hospital for emergency management. But at this stage any member of the team should be involved to make the oxygen and emergency kit available in case the patient's condition deteriorates.

Prevention: This problem can be avoided by making the duration of the appointments comparatively short. Morning appointments are preferable. Distraction techniques are important to reduce the stress level of the patient. Patient should be well informed about the treatment procedure and trust should be achieved about the procedure. In case of relatively restless kind of patient proper sedation should be administrated before starting the treatment. Treatment should be done in more supine or slight 'Trendelenburg Position'. Patient should be advised to have light snacks before the dental appointment.

2. **Epilepsy:** The prime symptom of epilepsy is seizure. Seizure is the uncontrolled electrical activity in the brain and may cause physical convulsion or some violent movement, thought disturbance etc. The patient may experience a sudden loss of consciousness – this is when the patient becomes rigid and cyanosed, it is known as the tonic phase. Along with these symptoms there would be jerking movements of limbs, patient may bite his/her tongue and may also experience frothing of the mouth and incontinence. After seizure the patient may be floppy or unconscious. The patient will regain consciousness after a variable time and may remain confused for some time. The most common triggering agents [15] are lack of sleep, illness or fever, stress, bright lights, flashing lights or patterns, caffeine, alcohol, medicines or drugs and skipping meals, overeating or specific food ingredients. But it is not always easy to identify the triggers. Causes of epilepsy are systemic and it requires a vast discussion to inform.

   Management: Dental treatment should be stopped immediately and mouth should be cleaned. All dangerous items should be removed from around the patient then gently restrain and prevent the patient from acting violent. The patient should not be restrained. No tongue blade or tongue depressor should be used. If necessary oxygen should be administrated and Valium 5 - 10 mg IV or Midazolam 2 - 4 mg IV/IM should be injected from the drug kit to relief the patient. Once the jerking has stopped the patient should be placed in the recovery position. If the patient experiences a prolonged seizure or the practitioner has difficulty monitoring the patient or it is the first time a patient has experienced a seizure an ambulance should be called.

   Prevention: To prevent this situation proper medical history of the patient should be obtained. If the patient is an epileptic one then the practitioner must confirm that the patient has taken anti- seizure medication on the day of dental procedure.

The patient should be reassured and very limited stress should be applied to the patient and application of proper sedation (i.e. Benzodiazepines, Barbiturates etc.) is recommended.

3. **Stroke:** A stroke occurs when part of the brain loses its blood supply and stops working. This cause the part of the body that the injured brain controls to stop working. It is also called a cerebrovascular accident, CVA or brain attack [16]. The F-A-S-T approach should be remembered to identify and act accordingly. Where F-A-S-T approach elaborates: F- Face dropping, A- Arm weakness, S- Speech difficulty, T- Time is life.

   Management: Basic Life Support (BSL) should be carried out in the supine position but head should be kept slightly elevated. The patient should be reassured and transferred to the hospital.

   Prevention: Stress management is a key to prevent stroke but it does not have any specific preventive measure related to dental procedure.

Allergic reactions or anaphylactic reaction

In dentistry anaphylactic reactions may follow the administration of drugs or contact with substances such as latex. Timing of anaphylactic reaction can be classified into two types, such as: 1. Immediate, 2. Delayed. Generally the more rapid the onset the more sever the reaction. Symptoms can develop in minutes and the early treatment can be life saving. Anaphylaxis is a sever life threatening, generalized or systemic hypersensitivity reaction. It is characterized by rapidly developing life-threatening airway or breathing or circulation problems usually associated with skin and mucosal changes [17]. The symptoms of anaphylactic reaction are: rash, erythema (kind of redness on the skin which disappears if finger pressure is applied), abdominal pain, vomiting, diarrhoea, upper airway oedema. Broncospasm may develop causing respiratory distress. Patient may experience tachycardia. In very cases it can result in a cardiac arrest.

Management: Dental treatment or medication should be stopped immediately. After that P-A-B-C-D- E approach should be used to assess the patient. If the airway is clear then the patient should lie flat and elevate the legs. Oxygen (10 - 15 liters per minute) should be administrated to reduce suffocation. Antihistamine should also be administrated 25 - 50 mg IM/IV in case of immediate attack followed by 25 - 50 mg tablet twice daily for two days. Adrenaline (500 micrograms) should be administrated. If there is no improvement after 5 minutes adrenaline should be re-administrated. Wheezing can be treated with Salbutamol inhaler. All patients should be sent to hospital following an anaphylactic attack.

Prevention: Proper medical history of the patient should be taken. Sensitive drugs, dental materials and medications should be avoided. Prophylactic antihistamine can also be used to avoid the risk of emergency. Patient should be reassured about the recovery and keep calm during the dental procedure.

Diabetic crisis

There are two types of diabetic crisis; hypoglycemic and hyperglycemic. Diabetes is a long term chronic disease in which there is high blood sugar level over a prolonged period. Some symptoms of diabetic crisis are; shaking or trembling, slurred speech, vagueness, sweating, double vision and confusion. Between hypoglycemia and hyperglycemia the visibility and the onset of hypoglycemia is more rapid and acute, also dangerous. At the very first stage the sugar level of the patient should be checked to identify the reason of the emergency situation. If it is hypoglycemia and the patient is conscious; patient may experience convulsions, salivation, tooth grinding and tongue biting. At this situation juice, cake frosting or sugar cubes must be supplied to raise the glucose level of the patient and in case of hyperglycemia insulin should be injected to restore the glucose level into a balanced one. But if the patient is unconscious and it is hypoglycemia; nothing like sugar or candy should be given by mouth. Rather it is prescribed to inject 1 mg glucagon IM/IV. Because it is the hormone which rapidly converts stored glycogen to glucose and increase blood sugar level. It is sold in the pharmacies as the Glucagon Emergency kit. This consists of a small plastic box containing a syringe filled with inert water like solution and a little vial of white powder (glucagon).

It also has an illustration sheet of using the kit at the time of emergency [18]. Along with glucagon, injection epinephrine 0.3 - 0.5 mg SC/IM/IV and infuse dextrose to restore the hydrated condition of the patient. It should begin to show signs of recovery within 5 minutes of a glucagon injection. The patient should fully regain consciousness and be able to talk sensibly within 20 minutes at most. If steady improvement is not apparent during the first 10 minutes, the only recourse is the emergency squad or hospital [18]. In case of hyperglycemia if the patient becomes unconscious; it is generally caused by dehydration. In that case hydration solution should be infused and insulin should be injected to reduce the excess blood sugar level. In case of unconscious patient; the patient should be turned to lie on his/her side with the head positioned that the mouth is downward. It will help to drain excess saliva from the mouth of the patient and nothing wouldn't breathe it in and choke.

Precaution during pregnancy and breastfeeding

Preventive, diagnostic and restorative dental treatment is safe throughout pregnancy. Local anesthetic with epinephrine may be used during pregnancy but patient's obstetrician must be informed and asked about the regimen of medication she is having. Healthy women with uncomplicated pregnancies can safely receive oral health services throughout pregnancy. X-ray imaging of the mouth is not contraindicated in pregnancy and should be utilized as required to complete a full examination, diagnosis and treatment plan [19]. Diagnostic x-rays should be performed utilizing the lowest amount of reasonably achievable radiation as outlined in the dental radio-graphic guidelines. Use of lead shielding including an apron and thyroid collar is recommended. Dental treatment for management of disease and restoration of function can be provided throughout pregnancy. Emergency or acute care can be provided at any time during pregnancy as indicated by the oral condition [19-21]. Elective procedures, such as cosmetic dental procedure and the initiation of orthodontic treatment can be deferred until after delivery. Consultation with the patient's obstetrician is recommended when considering the application of sedation i.e. nitrous oxide, intravenous sedation or general anesthesia to complete the dental procedure.

During prescribing the pregnant patient, practitioner must be careful with the medication. Certain drugs are known to cause miscarriage, teratogenicity and low birth weight of the fetus. Most drugs are excreted in breast milk, exposing newborn to the drugs. But toxicity to new born depends on the chemical properties, dose, frequency, duration of exposure to the drugs and amount of milk consumed. Most medication product inserts have information related to use during lactation. The National Library of Medicine also provides a searchable database on this topic. Every dental practitioner should go through it and prescribe accordingly.

Precaution for the patients of autism

The term Autism describes a brain disorder that affects social interaction, communication and often results in repetitive or stereotyped behavior. It may refer to a specific diagnosis that is consistent with a number of specific symptoms. These patients generally have poor eye contact, an inability to read expressions and difficulty with social reciprocity and appropriate peer interactions. Before starting the dental procedure the practitioner should obtain patient's parent's written consent which certifies that the patient has autism. The medical record of the patient must be reviewed prior starting any diagnosis. The appointment should be scheduled when the office is less busy. The practitioner should determine which hygienist would be a good match with the patient for carry out the dental procedure. Control of voice is important as it is true for most individuals, using a clam and soothing voice is always helpful. Along with that if the patient is accompanied by a sibling and he/she should stay with the patient and co-operate and encourage the patient during performing the dental procedure. Finally, there are some advanced trainings to treat patients with autism which is important to avoid any emergency in the dental office.

Dental trauma

During performing dental procedure different types of trauma or injury may happen to the patients. It may happen accidentally by the dental practitioner or any of the staff of the dental team. These traumas include: infarction, crown fracture, root fracture, concussion, subluxation, lateral luxation, intrusion, extrusion and avulsion etc. Along with that there might be accidental soft tissue (cheek, vestibule,

tongue) laceration. In all the cases patient should be reassured and keep calm. After that stitching, splinting or immobilization or appropriate treatment should be done according to the dental procedure.

Emergency management in the workplace

There are different types of workplace hazards or malfunctions. So the owner or the employer should have a valid and practical action plan to cope up with the occupational or workplace hazards. In case of the dental practice the practitioner should also take care of his workplace and have a complete back up plan to stand against the crisis. The dental office should have audible alarm system within the workplace for all the staff and the practitioners. There should be easy escape procedure and routes in case of any emergency. No lock should be installed to prevent easy escape from the building. Emergency exit sign should be placed and marked prominently and if exit is not readily apparent then the direction towards the exit should be prominently marked. Emergency evacuation and comprehensive emergency management activities should be practiced and revised by the staff of the office after a definite interval. Use of various type of fire extinguisher should also be learned and practiced by the staff members. During evacuation, all the staff, practitioner and visitors should gather at a pre-determined location. All the valuable material should be insured and insurance papers should be renewed according to the requirement.

To fight the fire emergency the office must have active smoke detectors in each and every room of the office and the vitality of the batteries of smoke detector should be regularly checked. Replace the smoke detector after a definite time as recommended by the manufacturer. It is to remember that a very small fire can engulf a room fast and fill that with smoke. Contacting the local fire control team should be acknowledged by all the staff of the office. Gas cylinders and hazardous chemicals should be placed at a specific place and the fire fighters should be notified prior to start emergency management.

In case of flood emergency all the electrical equipments should consider turning off from the main power cut-off switch and closing the main gas valve into the facility. All valuable documents, patient records, computers, furniture and other movable equipments should be moved to a higher floor.

In case of a medical emergency in the office, employees should notify the practitioner immediately. A designated staff member should call the paramedics, if directed. Until trained medical personnel arrive, staff should do what is necessary to make the sick or injured person comfortable. Inside an emergency kit the following non-drug items are recommended to keep along with the drug items [22].

1. Sterile adhesive bandages in assorted sizes
2. Assorted sizes of safety pin
3. Cleansing agent/ soap
4. Latex gloves (2 pairs)
5. 2- inch sterile gauze pads (4-6)
6. 4- inch sterile gauze pads (4-6)
7. Triangular bandages (3)
8. 2- inch sterile roller bandages (3 rolls)
9. 3- inch sterile roller bandages (3 rolls)
10. Scissors
11. Tweezers
12. Suture
13. Paper towels

14. Antiseptic
15. Thermometer
16. Tongue blades (2)
17. Tube of petroleum jelly of other lubricant
18. A battery – operated flashlight in case of power failure.

In case handling hazardous materials and chemicals, staffs should wear hand gloves, boots and safety glasses for eye protection. In case any other violence or emergency situations local police should be informed without any delay and for this reason the entire staff member should practice to report properly about the incidence to the police.

Management of documents

Dental practitioner must have a valid dental practice license and registration number to avoid any situational difficulties. All the valid documents for the practice should be kept safe at the place of the practice. The papers of the insurance of valuable possessions of the office should also be kept in a safe place to avoid any destruction. Records of patients and payment of the treatment should be fair and organized for further reference. These are very important aspects for the management of a health service center. Proper and clean document can save the owner or the employer from serious penalties. A full back up document should be conserved to avoid any data misguidance.

Conclusion

The definition of emergency may vary with different time, place, language or jurisdiction but eventually it causes loss of life, health, wealth, time and money. This is a challenging situation for medical and dental practitioner. Hence they should be well equipped and trained for any of the situations which can turn into an emergency. Recovery planning with the dental staff is not difficult and it is a good way to be ready for a major disaster that could close down the practice. Long before a disaster occurs, dentists should plan on how to recover or keep their practice open, if possible following a disaster.

An emergency is well managed with the preparedness, response, recovery and mitigation of the occurrence. And these stages can be well achieved by a foolproof planning, advanced training and practice. Above all, accurate risk assessment can reduce the chance of evoking any accident or emergency situation.

Bibliography

1. "emergency". BusinessDictionary.com. WebFinance, Inc (2018).
2. The General Dental Council Standards Guidance. The Principles of Team Working. General Dental Council: London (2006).
3. http://www.myoclinic.org/first-aid/first-aid-cpr/basics/art-20056600
4. Travers Andrew., et al. "American Heart Association Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care: CPR Overview". *Circulation* 122 (2010): S676-S684.
5. Ammonia Inhalants (Smelling Salts).
6. Emergency drugs.
7. Hydrocortisone Injection.
8. Nitroglycerin spray - lingual, Nitrolingual.

9. What Is Activated Charcoal Good For? Benefits and Uses.

10. Why people breathe into a paper bag when hyperventilating.

11. Thygerson A. "First Aid, CPR and AED". London: Jones and Bartlett Publishers International (2005).

12. Angina.

13. Fowler position.

14. Heart rhythm changes.

15. What triggers an epileptic seizure?

16. Stroke definition and facts.

17. Resuscitation Council UK. Emergency Treatment of Anaphylactic Reactions. London: Resuscitation Council UK (2008).

18. Treating Hypoglycemia if you are Unconcious.

19. "Oral Health Care During Pregnancy and Early Childhood: Practice Guidelines". New York State Department of Public Health (2006).

20. "Oral Health During Pregnancy and Early Childhood: Evidence-Based Guidelines for Health Professionals". California Dental Association Foundation (2010).

21. Oral Health Care During Pregnancy Expert Workgroup. "Oral Health Care During Pregnancy: A National Consensus Statement – Summary of an Expert Workgroup Meeting". Washington, DC: National Maternal and Child Oral Health Resource Center (2012).

22. Emergency Planning and Disaster Recovery in the Dental Office (2003).

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