

Lec 7 Periodontal management of medically compromised Patients

Treating the medically compromised patient is a complex part of dentistry , requiring competent practitioners with many attributes : sound technical skills ,insight into medicine, familiarity with pharmacotherapeutics, and the capability of analyzing findings from patient histories and signs and symptoms. Many patients seeking dental care have significant medical conditions that may alter both the course of their oral disease and the therapy provided.

The older age of the periodontal patient increases the likelihood of underlying disease. Therefore the therapeutic responsibility of the clinician includes identification of the patient's medical problems to formulate proper treatment plans. Thorough medical histories are important and sometimes consultation with or referral of the patient to an appropriate physician may be indicated. This ensures correct patient management and provides medico-legal coverage to the clinician.

From the most common medical problems are the following

1. Cardio-vascular diseases:

These diseases are the most prevalent category of systemic disease and more common with increasing age. They include

A) Hypertension: It's the most common cardiovascular disease and it is defined as a systolic blood pressure of 140 mmHg or greater, or a diastolic blood pressure of 90 mmHg or greater, **and it's not diagnosed** on a **single** elevated blood pressure recording but it's based on the **average value of three or more blood pressure readings** taken at three or more appointments. If hypertension persist and increase in severity, it may lead to coronary heart disease, angina, congestive heart failure, cerebrovascular accident or kidney failure.

Management of those patients will be as follows:

- 1) No periodontal treatment should be given to a patient who is hypertensive and not under the medical management.
- 2)Stress free, calm and relaxing environment with short appointments.
- 3) The dentist should inform the physician about the degree of stress, blood loss and length of the periodontal procedure so that to avoid excessive bleeding.

4) Local anesthesia without epinephrine may be used for short procedures (less than 30 minutes) or use local anesthesia with an epinephrine concentration not more than 1:100,000 to control pain and minimize stress.

An aspirating syringe should be used since epinephrine in the anesthetic solution may get into blood and may raise blood pressure. (**dental treatment for hypertensive patients is generally safe as long as stress is minimized**).

5) Postural hypotension is common with patients on antihypertensive drug and can be minimized by slow positional changes in dental chair.

B) Angina pectoris: Angina occurs when myocardial oxygen demand exceeds supply, resulting in temporary myocardial ischemia. Patients with a history of **unstable angina pectoris** (angina that occurs irregularly or on multiple occasions without predisposing factors) should be treated for **emergencies only** and in consultation with the patient's physician.

Patients with a history of **stable** (angina that is associated with stress and easily controlled with medication and rest) can be treated with the following precautions:

1) Premedication if needed as valium.

2) Morning and short appointments.

3) Nitroglycerine medication sublingually 5 minutes before the procedure.

4) If a patient with a history of angina experiences chest pain during the periodontal surgery, the treatment must be stopped; the patient should be given glyceryl trinitrate 0.3 – 0.6 mg sublingually and oxygen and be kept sitting upright.

C) Myocardial infarction: Periodontal treatment should not be done **for at least 6** months following myocardial infarction because the peak mortality rate occurs during this time. After 6 months, the patient can be usually using the similar precautions of stable angina patient

2. Endocrine disorders

A) Diabetes Mellitus: The diabetic patient requires special precautions before periodontal therapy. The two major types of diabetes are type 1 (formerly known as insulin-dependent diabetes) and type 2 (formerly called non-insulin dependent diabetes). Diabetic patients are managing their blood glucose levels (glycemia) through diet, oral agents and insulin therapy. The classic signs of diabetes include polydipsia (excessive thirst), polyuria (excessive urination), and polyphagia (excessive hunger with unexplained weight loss). If the patient has any of these signs and symptoms, physician consultation is indicated for further investigation because periodontal therapy has limited success in the presence of undiagnosed or poorly

controlled diabetes. If the patient is suspected of having undiagnosed diabetes, the following procedures should be performed:

1- Consult the patient's physician .

2- Analyze laboratory tests .

a) Fasting blood glucose ≥ 126 mg/dL.(Fasting is defined as no caloric intake for at least 8 hours).

(normal fasting glucose is 70 – 100 mg/dL).

b) Symptoms of diabetes plus non-fasting plasma glucose ≥ 200 mg/dL.

Non fasting glucose may be drawn at any time of the day without regard to time since the last meal.

3- Provide emergency periodontal treatment only for such patient like acute periodontal abscess until diagnosis is established. If a patient is known to have diabetes, it is important to determine the level of glycemic control before initiating periodontal treatment.

The primary test used to assess glycemic control in a known diabetic individual is the glycosylated or glycated hemoglobin test (**HbA1c**). HbA1c is a fraction of hemoglobin found in normal persons and it increases in the presence of hyperglycemia and it reflects blood glucose concentration over the preceding 2 to 3 months and may provide an indication of the potential response to periodontal therapy.

Normally, patient should have **6% to 8% HbA1c** .In well-controlled diabetic patient , the level of HbA1c should stay below 7% .Those patients usually **respond to therapy** in a **manner similar to non diabetic** individuals. The level of hyperglycemia as indicated by HbA1c may reach as high as 20% in some uncontrolled cases.

Poorly controlled patients (**>8%**) often have a **poor response** to treatment, with more postoperative complications. In diabetic patients taking insulin injections, the most common dental complication is **hypoglycemia**. **The sign and symptoms** of hypoglycemia are tremors, confusion, anxiety, sweating, tachycardia, unconsciousness. It **is important** to know the number of times per day the patient taking insulin and the time of the last dose. Periodontal treatment often can be timed to avoid peak insulin activity.

If hypoglycemia occur during periodontal treatment, therapy should be immediately terminated, and the patient should take juice or glass of water and sugar. As a general guideline, well-controlled diabetic patients having routine periodontal treatment may take their normal insulin doses as long as they also eat their normal meal. If the procedures are going to be long, the insulin dose before treatment may need to be reduced. Consultation with patient's physician is important to determine any modifications needed.

B)Thyroid disorders:- **Hyperthyroidism or thyrotoxicosis** may increase risk for hypertension, angina, congestive heart failure. So

- 1) Avoid any periodontal treatment for patient with thyrotoxicosis until good medical control.
- 2) Avoid epinephrine and other pressor amines in incompletely treated patient.
- 3) Avoid stress and control periodontal infection to prevent the occurrence of thyrotoxic crisis in untreated patient.
- 4) Once under good medical management, patient may receive dental treatment.

In hypothyroidism

- 1) Avoid stress and infection to prevent the occurrence of hypothyroid coma.
- 2) Avoid narcotics and tranquilizers in untreated hypothyroid patients because of inability to tolerate drugs.
- 3) In patient under good medical management, dental treatment may be performed.

3.)Pregnancy:

The aim of periodontal therapy for pregnant women is to reduce the exaggerated inflammatory response of the periodontal tissues to local factor which related to hormonal changes associated with pregnancy.

The precautions that should be taken during the treatment of a pregnant patient:

- 1) Short appointments, served in series because patient fatigues easily.
- 2) Position the patient on her left side and not in supine position for long time because of discomfort of remaining in one position.
- 3) Advice non-alcoholic mouthwash and neutral sodium fluoride rinse
- 4) Advice not to brush right after vomiting to prevent erosion as nausea and vomiting is common in first trimester.
- 5) Recommend less strong flavored dentifrice because of adverse reaction to strong smells and flavor to the pregnant patient
- 6) Recommend a small toothbrush; take care in instrumentation and radiographic film placement to prevent gagging.
- 7) Ideally, no medications should be prescribed that cross the placenta and affect the fetus because of toxic or teratogenic effects of therapy on the fetus.
- 8) Use of dental radiographs during pregnancy should be kept to a minimum. When they are required during pregnancy patient is covered with a lead apron, thyroid collar and a second apron for the back to prevent secondary radiations from reaching the abdomen .

– The **second trimester** is the **safest time** for treatment (scaling, polishing, root planing) while surgical procedures should be postponed after delivery.

4) Neurologic Disorders

Several diseases affecting the nervous system are of clinical significance in dental practice. These diseases may vary in severity and consequences. The more common and significant neurologic diseases are stroke, Parkinson disease, Alzheimer disease, epilepsy, and multiple sclerosis (MS).

Epilepsy: Epilepsy is not a specific diagnosis but rather a term that refers to a group of disorders characterized by chronic and recurrent, paroxysmal changes in neurologic function (seizures), altered consciousness, or involuntary movements caused by abnormal and spontaneous electrical activity in the brain. Although seizures are required for the diagnosis of epilepsy, not all seizures imply presence of epilepsy. Seizures may occur during many medical or neurologic illnesses, including stress, sleep deprivation, fever, alcohol or drug withdrawal, and syncope.

Management of those patients include:

- 1- identification of the patient by the medical history and by discussion with the patient or family members. The dental practitioner must learn as much as possible about the seizure history, including the type of seizures, age at onset, cause (if known), current and regular use of medications, frequency of physician visits, quality of seizure control, frequency of seizures, date of last seizure.
- 2- Well controlled patients with anticonvulsant drugs are able to receive normal routine dental care.
- 3- poorly controlled disease may require additional anticonvulsant or sedative medication, as directed by the physician. Clinicians should provide good pain control to avoid stress, which may precipitate a seizure.
- 4- Possibility of bleeding tendency in patients taking valproic acid (Depakene) or Carbamazepine (Tegretol) as the result of platelet interference (decrease platelet aggregation) so consult with the physician.
- 5- No contraindication has been identified to the use of local anesthetics with Epinephrine (1 : 100,000 and no more than two carpules) in these patients.
- 6- Preventive measures include scheduling the patient at a time within a few hours of taking the anticonvulsant medication, using a mouth prop, removing dentures.
- 7- **If a patient has a seizure while in the dental chair, the primary task of management is to:**
 - a- protect the patient and try to prevent injury.
 - b- no attempt should be made to move the patient to the floor.
 - c- the instruments and instrument tray should be cleared from the area
 - d- the chair should be placed in a supported supine position
 - e- the patient's airway should be maintained patent. Turn the patient to the side (to avoid aspiration).

f- if the mouth prop is used, it should be inserted at the beginning of the dental procedure not at the time of seizure.

8- After a seizure: a- Examine for traumatic injuries. b- Discontinue treatment; arrange for patient transport.

9- gingival overgrowth is associated with phenytoin administration is the most significant oral complication in patients with epilepsy , so every effort should be made to maintain a patient at an optimal level of oral hygiene. If gingival overgrowth is significant, surgical reduction will be necessary.

5) Infectious diseases:-

Because medical histories are often inaccurate or incomplete, all periodontal patients should be treated as they have an infectious disease. Protection of patients, clinicians and office staff requires use of universal (standard) precautions for each patient. An examples of these diseases are hepatitis , AIDS , Tuberculosis and Coronavirus (COVID-19).

A.Hepatitis: Six distinct viruses causing viral hepatitis have been identified A,B,C,D,E and G viruses. These forms differ in their virology, epidemiology and prophylaxis. Hepatitis A and E are both self-limiting infections with no associated chronic Liver disease and these viruses transmitted via fecal-oral route. Hepatitis B infection may result in chronic liver disease, it transmitted mainly through hematogenous routes and through contaminated instruments or needles in the dental office. Hepatitis B vaccine is recommended for all care health workers. Hepatitis D virus requires the presence of hepatitis B virus to survive and replicate because the virus genetic material is packaged within the hepatitis B virus surface antigen coating. So prevention of this virus depends strongly on hepatitis B virus vaccination. **Hepatitis C is the most serious infection due to high chronic infection rate.** Only 15% of patients infected with this virus recover completely and 85% develop chronic infection which increases the risk for cirrhosis , carcinoma and liver failure. No vaccine is available for this virus. Hepatitis G is a newly discovered virus and its virology is not clearly understood and its known to be transmitted via blood.

-If the disease is in the active stage, do not provide periodontal treatment.

-For patients with past history of hepatitis, consult the physician to determine the type of hepatitis, course & length of the disease and mode of the transmission.

-For recovered type A or E hepatitis patients, perform routine periodontal care.

-For recovered type B and D hepatitis patients you must screen for HBsAg. if this test is positive , so the patient is infective.

-Patient with positive anti-HBs may be treated routinely.

-Patients with active hepatitis and need emergency treatment, we should do the following:

1- Using full barrier techniques including masks, gloves and eye glasses.

2-Do not use ultrasonic instrument or air syringe so that not to transfer the infection by the saliva.

3-Rinsing with chlorhexidin mouth wash is recommended.

4-When the procedure is complete; all instruments should be sterilized carefully

B.Tuberculosis:

The patient with tuberculosis should receive emergency care only. Physician should be consulted for the result of sputum cultures for mycobacterium tuberculosis. When the results are **negative**, the patient may be treated normally. When the results are **positive** we have to know that adequate treatment of tuberculosis requires a minimum of **18 months** with a post treatment follow up.

So periodontal treatment should include emergency only. In general in case of infectious disease it is preferable to wear double gloves and double masks. The sterilization should be done in auto clave 120-130 °C for about one or two hours.

General precautions should be taken while treating pulmonary diseased patient:

- 1) Take proper history of the patient
- 2) Consult patient's physician regarding medications and status of pulmonary diseases
- 3) Stress free environment
- 4) Position the patient in upright position
- 5) Avoid drugs causing respiratory depression – like GA, narcotics , sedatives
- 6) Avoid bilateral mandibular block anesthesia)
- 7) Avoid ultrasonic instrumentation)
- 8) For patients with history of asthma, inhaler should be available)
- 9) Periodontal procedure should not be done until emergency is there with active fungal/bacterial respiratory disease.