



## Periodontology- fourth stage



# second semester-Periodontal Treatment of Medically Compromised Patients Lec.12-Part1

By assistant lecturer: Reham Adnan Radhi  
Department of Periodontology  
College of dentistry  
University of Basrah



# Content

- **Cardiovascular Diseases**
  - ✓ Hypertension
  - ✓ Angina pectoris
  - ✓ Myocardial infraction
  - ✓ Congestive Heart Failure
  - ✓ Infective Endocarditis
  - ✓ Cerebrovascular Accident
- **Endocrine Disorders**
  - ✓ Diabetes

## Cardiovascular Diseases

- Cardiovascular diseases are the most prevalent category of systemic disease in the United States and many other countries, and they are more common with increasing age.
- **Including** hypertension, angina pectoris, myocardial infarction (MI), cardiac bypass surgery, cerebrovascular accident (CVA), congestive heart failure (CHF), infective endocarditis (IE), and implanted cardiac pacemakers.

★ Most cases, the patient's physician should be consulted, especially if stressful or prolonged treatment is anticipated.

## ❖ Hypertension

- The most common cardiovascular disease, affects more than 50 million American adults, many of whom are undiagnosed.
- The dental office can play a vital role in the detection of undiagnosed hypertension and the compliance of patients being treated for hypertension. **Blood pressure should be taken at the initial visit and at each recall visit.**
- The first dental office visit **should include two BP readings spaced at least 10 minutes apart**, which are averaged and used as a baseline. Before the clinician refers a patient to a physician because of elevated BP, readings should be taken at a minimum of two appointments, unless the measurements are extremely high (i.e., **systolic pressure >180 mm Hg or diastolic pressure >100 mm Hg**).

## TABLE :Classification of Adult Blood Pressure

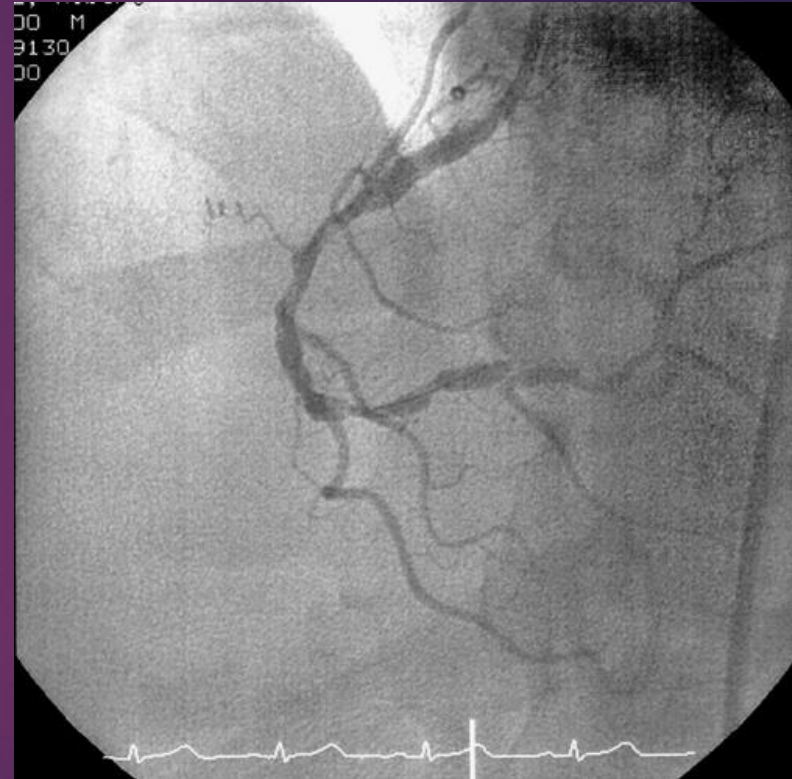
Classification	Systolic (mm Hg)	Diastolic (mm Hg)	Dental Treatment Modifications
Normal	<120	<80	No changes in dental treatment
Prehypertension	120–139	80–89	No changes in dental treatment Monitor BP at each appointment
Stage 1 hypertension	140–159	90–99	Inform patient of findings Medical consultation or referral Monitor BP at each appointment No changes in dental treatment; minimize stress
Stage 2 hypertension	≥160	≥100	Inform patient Medical consultation or referral Monitor BP at each appointment If systolic BP is <180 mm Hg and diastolic is <110 mm Hg, perform selective dental care (i.e., routine examination, prophylaxis, restorative nonsurgical endodontics and periodontics); minimize stress If systolic BP ≥180 mm Hg or diastolic ≥100 mm Hg, give immediate medical consultation or referral and perform emergency dental care only (to alleviate pain, bleeding, infection), <sup>a</sup> minimize stress Consider stress-reduction protocol

## Notes

- When treating hypertensive patients, the clinician should not use a local anesthetic containing an epinephrine concentration greater than 1 : 100,000 or a vasopressor to control local bleeding.
- Epinephrine-induced  $\alpha$ -adrenergic stimulation results in vasoconstriction and increased BP.
- The clinician should be aware of the many side effects of antihypertensive medications. ***Postural hypotension*** is common and can be minimized by slow positional changes in the dental chair.

## ❖ Ischemic Heart Diseases

- Ischemic heart disease includes disorders such as **angina pectoris** and **MI**.
- **Angina pectoris** occurs when myocardial oxygen demand exceeds supply, resulting in temporary myocardial ischemia.
- Patients with a history of **unstable angina pectoris** (i.e., angina that occurs irregularly or on multiple occasions without predisposing factors) should be treated only for emergencies and then in consultation with their physician.



As seen on a coronary angiogram, atherosclerosis can result in narrowing of the coronary arteries, producing signs and symptoms of ischemic heart disease

- Patients with **stable angina** (i.e., angina that occurs infrequently, is associated with exertion or stress, and is easily controlled with medication and rest) can undergo elective dental procedures. Because stress often induces an acute anginal attack.
  
- **A patient who has an anginal episode in the dental chair should receive the following emergency medical treatment:**
  1. Discontinue the periodontal procedure.
  2. Administer 1 tablet (0.3 to 0.6 mg) of nitroglycerin sublingually.
  3. Reassure the patient, and loosen restrictive garments.
  4. Administer oxygen with the patient in a reclined position.



5. If the signs and symptoms **cease within 3 minutes**, complete the periodontal procedure if possible.
6. If the anginal signs and symptoms **do not resolve with this treatment within 5 minutes**, administer another dose of nitroglycerin, monitor the patient's vital signs, call the patient's physician, and be ready to accompany the patient to the emergency department.
7. **A third nitroglycerin tablet can be given 5 minutes after the second**. Chest pain that is not relieved by three tablets of nitroglycerin indicates likely MI. The patient should be transported to the nearest emergency medical facility immediately.

## Myocardial infraction

- MI is the other category of ischemic heart disease encountered in dental practice.
- Dental treatment is usually deferred for at least 6 months after MI because the peak mortality rate occurs during this time. After 6 months, MI patients can usually be treated using techniques similar to those for stable angina patients.

## ❖ Cardiac Pacemakers

- Cardiac arrhythmias are most often treated with medications, but some are also treated with implantable pacemakers.
- Pacemakers are usually implanted in the chest wall and enter the heart transvenously.
- Older pacemakers were unipolar and could be disrupted by dental equipment that generated electromagnetic fields, such as ultrasonic and electrocautery units. Newer units are bipolar and are usually not affected by dental equipment.

## ❖ Congestive Heart Failure

- CHF is a condition in which the pump function of the heart is unable to supply sufficient amounts of oxygenated blood to meet the body's needs.
- ✓ Patients with poorly controlled or untreated CHF are not candidates for elective dental procedures. These individuals are at risk for sudden death.
- ✓ For patients with treated CHF, the clinician should consult with the physician regarding the severity of CHF, underlying cause, and current medical management.

## ❖ Infective Endocarditis

- Infective endocarditis (IE) is a disease in which microorganisms colonize damaged endocardium or heart valves.
- ✓ The term infective endocarditis is preferred to the previous term bacterial endocarditis because the disease can also be caused by fungi and viruses.
- ✓ The organisms most often encountered in IE are  $\alpha$ -hemolytic streptococci (e.g., *Streptococcus viridans*). However, non streptococcal organisms often found in the periodontal pocket have been increasingly implicated, including *Eikenella corrodens*, *Aggregatibacter actinomycetemcomitans*, *Capnocytophaga*, and Lactobacillus species.

- The **AHA states** that patients who are at risk for IE should “establish and maintain the best possible oral health to reduce potential sources of bacterial seeding.” To provide adequate preventive measures for IE, the clinician’s major concern should be to reduce the microbial population in the oral cavity to minimize soft tissue inflammation and bacteremia.

## Preventive measures to reduce the risk of IE consist of the following:

- Provide oral hygiene instruction. Oral hygiene should be practiced with methods that improve gingival health oral hygiene should initially be limited to gentle procedures (i.e., oral rinses and gentle tooth brushing with a soft brush) to minimize bleeding.
- **Recommended antibiotic prophylactic regimens should be practiced with all high-risk patients during periodontal treatment.**

## Recommended Antibiotic Prophylaxis Regimens for Periodontal Procedures in Adults at Risk for Infective Endocarditis

Regimen	Antibiotic	Dosage
Standard oral regimen	Amoxicillin	2.0 g 30–60 min before procedure
Alternate regimen for patients allergic to amoxicillin or penicillin	Clindamycin	600 mg 30–60 min before procedure
	Azithromycin or clarithromycin	500 mg 30–60 min before procedure
	<i>or</i> Cephalexin or cefadroxil <sup>b</sup>	2.0 g 30–60 min before procedure
Regimen for patients unable to take oral medications	Ampicillin	2.0 g intramuscularly or intravenously within 30 min before procedure
Regimen for patients unable to take oral medications and allergic to penicillin	Clindamycin	600 mg intravenously within 30 min before procedure (must be diluted and injected slowly)
	<i>or</i> Cefazolin <sup>b</sup>	1.0 g intramuscularly or intravenously within 30 min before procedure



**The following guidelines can aid in the development of periodontal treatment plans for patients susceptible to IE**

- *For patients at risk for IE, every effort should be made to eliminate this infection.*
  - *Teeth with severe periodontitis and a poor prognosis may require extraction.*
  - *Teeth with less severe involvement in a motivated patient should be retained, treated, and maintained closely.*
- *All periodontal treatment procedures (including probing)*
  - *require antibiotic prophylaxis.*
  - *Pretreatment chlorhexidine rinses are recommended before all procedures, including periodontal probing, because these oral rinses significantly reduce the bacteria on mucosal surfaces.*

- *To reduce the number of visits required and there by minimize the risk of developing resistant bacteria.*
- *When possible, allow at least 7 days between appointments (preferably 10 to 14 days). If this is not possible, select an alternative antibiotic regimen for appointments within a 7-day period.*
- *Regular recall appointments, with an emphasis on oral hygiene reinforcement and maintenance of periodontal health, are extremely important for patients susceptible to IE.*

## ❖ Cerebrovascular Accident

- A CVA (i.e., stroke) results from ischemic changes (e.g., cerebral thrombosis caused by an embolus) or hemorrhagic phenomena. Hypertension and atherosclerosis are predisposing factors for CVA.
- **Dental clinicians should treat post-CVA patients with the following guidelines in mind:**
  1. No periodontal therapy (except for an emergency) should be performed for 6 months because of the high risk of recurrence during this period.
  2. After 6 months, periodontal therapy can be performed during short appointments with an emphasis on minimizing stress. using the minimal effective dose of local anesthetic agents. Concentrations of epinephrine greater than 1 : 100,000 are contraindicated.

3. Light conscious sedation (i.e., inhalation, oral, or parenteral) can be used for anxious patients. Supplemental oxygen is indicated to maintain thorough cerebral oxygenation.
4. Stroke patients are frequently placed on oral anticoagulants, Any changes in anticoagulant therapy regimens for a stroke patient should be done in consultation with the patient's physician
5. BP should be monitored carefully, recurrence rates for CVAs are high.

# Endocrine Disorders

## Diabetes

- Diabetes mellitus is an extremely important disease from a periodontal standpoint. It is a complex metabolic disorder characterized by chronic hyperglycemia.
- The diabetic patient requires special precautions before periodontal therapy. Type 1 diabetes was formerly known as insulin-dependent diabetes, and type 2 diabetes was referred to as non–insulin-dependent diabetes.
- The classic signs of diabetes include **polydipsia** (i.e., excessive thirst), **polyuria** (i.e., excessive urination), and **polyphagia** (i.e., excessive hunger, often **with unexplained concurrent weight loss**). If the patient has any of these signs or symptoms or the clinician suspects diabetes, further investigation with laboratory studies and physician consultation is indicated.

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

1. Consult the patient's physician.
2. Analyze laboratory tests, including fasting blood glucose and casual glucose test results.

1. Fasting plasma glucose level  $\geq 126$  mg/dL ( $\geq 7.0$  mmol/L). *Fasting* is defined as no caloric intake for at least 8 hours. **The normal fasting glucose level is 70 to 100 mg/dL.**

2. Two-hour postprandial glucose level  $\geq 200$  mg/dL ( $\geq 11.1$  mmol/L) during an oral glucose tolerance test. The test should be performed using a glucose load containing the equivalent of 75 g anhydrous glucose dissolved in water. **The normal 2-hour postprandial glucose level is  $< 140$  mg/dL.**

3. Glycated hemoglobin (HbA1c) value  $\geq 6.5\%$  ( $\geq 48$  mmol/L).

4. Random plasma glucose level  $\geq 200$  mg/dL ( $\geq 11.1$  mmol/L) for a patient with classic symptoms of hyperglycemia or hyperglycemic crisis.

- The therapeutic goal for many patients is to achieve and maintain an HbA1c below 8%. Patients with **relatively well-controlled diabetes (HbA1c <8%)** usually respond to therapy in a manner similar to nondiabetic individuals.
- **Poorly controlled patients (HbA1c >10%)** often have a poor response to treatment, with more postoperative complications and less favorable long-term results.

## Notes

- Patients with a blood glucose level at or below the lower end of normal before the procedure may become hypoglycemic intraoperatively. It is advisable to have the patient consume some carbohydrate before starting treatment.
- If the pretreatment glucose level is excessively high, the clinician should determine whether the patient's glycemic control has been poor recently.. If glycemic control has been poor over the preceding few months, the procedure may need to be postponed until better glycemic control is established.



## 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 procedure is going to be particularly long, the insulin dose before treatment may need to be reduced.

# Bibliography

*Newman and Carranza's Clinical Periodontology, THIRTEENTH EDITION.*



THANK



YOU