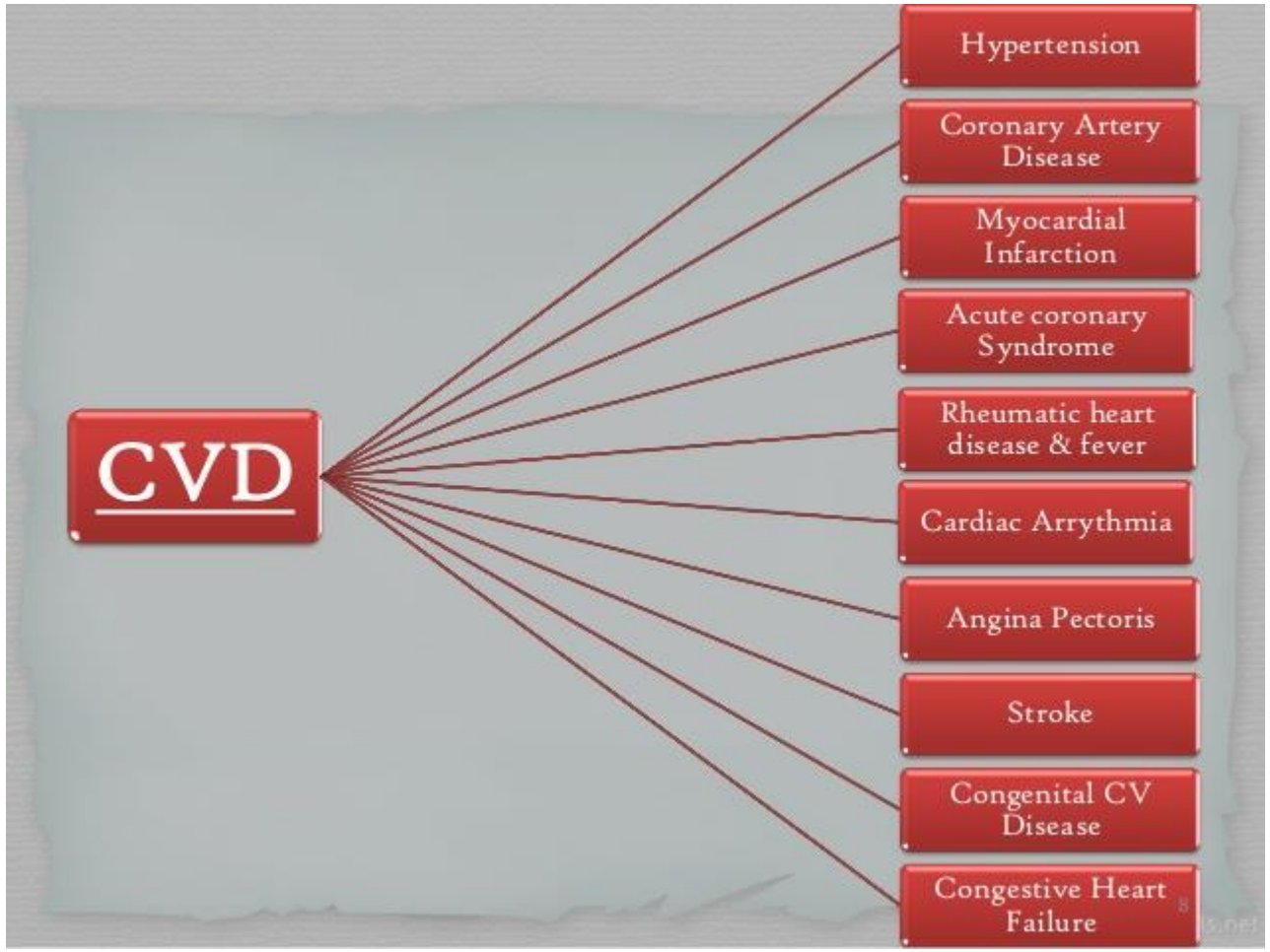

CVD
Hypertension
Coronary Artery Disease
Myocardial Infarction
Acute coronary Syndrome
Rheumatic heart disease & fever
Cardiac Arrythmia
Angina Pectoris
Stroke
Congenital CV Disease
Congestive Heart Failure

SCHEME OF HISTORY TAKING

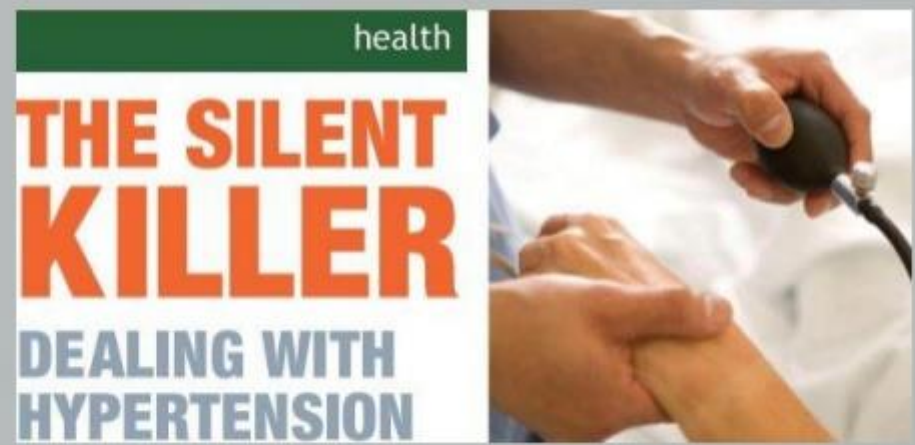
1) Symptoms and history of presenting illness

2) Past history

3) Family History

4) Personal History

HYPERTENSION



Recheck :-

- Every 2 yrs for patient with BP <120/80 mm Hg.
- Every 1 yr for patient with BP 120-139/80-89 mm Hg.
- Every visit for patient with BP >140/90 mm Hg.
- Every visit for patient with established coronary artery disease, diabetes mellitus or chronic renal disease with BP >135/85 mm Hg.
- Every visit for patient with established hypertension.

Before initiating dental care:

- Assess presence of hypertension
- Determine presence of target organ disease
- Determine dental treatment modifications

1. ***Asymptomatic BP <159/99 mm Hg, no history of target organ disease***

- No modifications needed
- Can safely be treated in dental setting

2. ***Asymptomatic BP 160-179/100-109 mm Hg, no history of target organ disease***

- Assessment on an individual basis with regard to type of dental procedure BP>180/110 mm Hg, no history of target organ disease
- No elective dental care until BP is controlled.

3. ***Presence of target organ disease or poorly controlled diabetes mellitus***

- No elective dental care until BP is controlled , preferable below 140-90 mm Hg.

CORONARY (ISHAEMIC) ARTERY DISEASE

DENTAL ASPECTS

- STRESS, ANXIETY, EXERTION or PAIN can provoke angina.
- Short, minimally stressful dental appointments.
- Late morning appointments.
- Excessive dose of LA containing adrenaline to be avoided in patients taking beta blockers.
- More Common - severe dental caries and periodontal disease in pts of IHD.

ANGINA PECTORIS

Dental aspects

- Preoprerative glyceryl trinitrate & oral sedation advised sometimes.
- Dental care carried with minimal anxiety & oxygen saturation
- Monitor pulse & B.P.
- POST ANGIOPLASTY elective dental care deffered for 6 months , emergency dental care in a hospital setting.
- Patients with BYPASS GRAFTS – anti biotic cover against infective endocarditis .

  - LA containing adrenaline is contraindicated (may ppt dysrhythmia)

- Patients with vascular stents – no antibiotic cover except during 1st 6 week postop for emergency dental care.

- DRUGS used in t/t of angina may cause oral adverse effects like :

  -lichenoid reaction
  - gingival swelling
  - ulcers (nicorandil)

  } Ca channel blockers

MYOCARDIAL INFARCTION

General Precautions during Dental Procedures

- Dental clinic should have *advanced cardiac life support* or at least basic cardiac life support.
- Use of *pulse oximeter* to determine the level oxygenation.
- Automatic external *defibrillator*.
- Determination of *vital signs* prior to dental care.
- BP & pulse rate & rhythm should be recorded & any abnormal findings should be addressed.
- *Premedication* with antianxiety drugs and inhalation nitrous oxide in anxious patients.
- Elective procedures esp those requiring GA should be *avoided* for *atleast 4 wks aftr MI*. consult pt's physician prior to dental therapy

Management on dental chair

1. Terminate all dental treatment
2. Position pt in **semirecline** position
3. Give **nitroglycerin(TNG)** (abt 0.4 mg) tablet or spray
4. Administer **oxygen**
5. Check **pulse & B.P.**

Discomfort relieved

6. Assume angina pectoris is present
7. Slowly taper oxygen over 5 mins
8. Modify t/t to prevent recurrence

Discomfort continues 3 mins after 2nd TNG

6. give 2nd TNG dose
7. monitor vital signs.

discomfort relieved

discomfort 3 mins after TNG

8. give 3rd TNG dose
9. Monitor vitals
10. Call for medical assistance

Discomfort relieved

11. Refer pt for medical evaluation before solution further dental care

discomfort continues 3 mins after 3rd TNG dose

12. assume MI is in progress
13. start **i.v. line** with drip of a crystalloid at 30 mL/ hr

14. If discomfort severe titrate **morfine sulphate** 2mg s/c or i/v every 3 mins until relief is obtained
15. Transport to emergency care. Administer **Basic Life Support** ,if necessary.

Anticoagulation Therapy & Dental Care

- Anticoagulant therapy is used both to treat & to prevent throboembolism.
- 2 major types : 1. antiplatelet medications
  2. antithrombin medications
- Acetylsalicylic acid (ASA) + clopidogrel (anticoagulant) given for 4 weeks after stent implantation.
- daily aspirin typically continued lifelong.
- May increase risk of oral bleeding following surgical procedures.
- Associated conditions which predispose patient to uncontrolled hemostasis : uraemia or liver diseases or use of NSAIDS.
- If emergency surgery needs to be done,DDAVP(1-desamino-8-D-arginine vasopressin) is administered{0.3 micro kg/body wt parenterally} within 1 hr of surgery.

- Antithrombin medications are dicumarols (eg. Warfarin), it inhibits biosynthesis of vit. – K dependent coagulations protein.

- Efficacy monitored by prothrombin time or the international normalized ratio (INR), which is calculated on the basis of international sensitivity index (ISI).
- INR ranges from 2.0 – 3.5 & it should be performed within 24 hrs of surgery.
- If INR is < 3.5, anticoagulation therapy should be discontinued before minor surgical procedures.

- 3 different protocols used to treat patients with elevated INR :

- **Ist protocol** – warfarin not discontinued (minimizes thromboembolic events & increases risk of bleeding after surgery).

- **IInd protocol** – warfarin discontinued (drug should be discontinued 2-3 days prior to surgery, during this period patient is at risk of developing thromboembolic event but not bleeding).

- **IIIrd protocol** – warfarin discontinued & patient placed on alternative anticoagulant therapy (thromboembolic event minimized).

RHEUMATIC FEVER

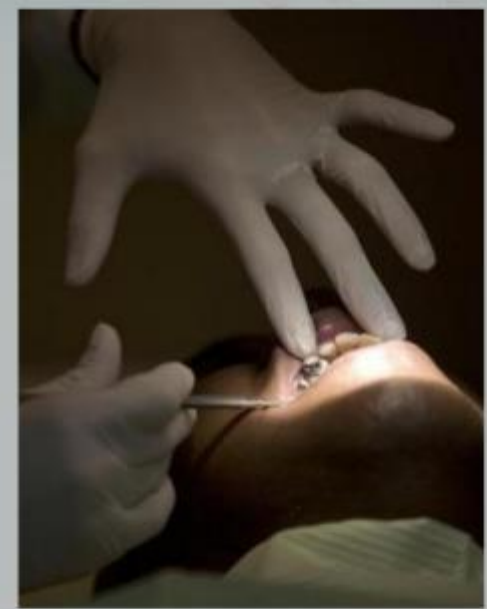
- **Rheumatic fever** is an inflammatory disease that may develop two to three weeks after a Group A streptococcal infection (such as strep throat or scarlet fever). It is believed to be caused by antibody cross-reactivity and can involve the heart, joints, skin, and

Brain .

- Acute rheumatic fever commonly appears in children ages 5 through 15, with only 20% of first time attacks occurring in adults.

DENTAL CONSIDERATION

- Dental extractions and local anesthesia in consent with physician.
- The prophylactic use of antibiotics prior to a dental procedure is now recommended **ONLY** for those patients with the highest risk of adverse outcome resulting from endocarditis.
- GA should be avoided if essential must be given in hospital.



RHEUMATIC HEART DISEASE

DENTAL CONSIDERATIONS

- To prevent complication of infective endocarditis ,all dental procedures should be carried under antibiotic cover.
- Amoxicillin prophylaxis-1 hour before and 6 hours after the initial dose.
- Good oral hygiene measures ,fluoride treatment, chlorhexidine rinses and routine cleanings to reduce harmful bacteremias.

- Proper history should be taken to identify history of rheumatic fever during childhood.
- Suspicious cases should be referred to cardiologist for cardiac evaluation prior to dental procedures.
- Clindamycin or erythromycin prophylaxis during dental treatment.
- Elective dental treatment under physician consultation.

HEART FAILURE

DENTAL ASPECTS

- The dental chair should be kept in partially reclining or erect position and patient should be raised slowly in upright position.
- Emergency dental care should be conservative, principally with analgesics and antibiotics.
- Appointments should be short
- Non stressful appointments
- Patients are best treated in late morning because of epinephrine levels peak in early morning.

- Bupivacaine should be avoided as it is cardiotoxic.
- An aspirating syringe should be used to give local anesthetic
- Epinephrine containing LA should be not given in large doses to patients taking beta blockers.
- Gingival retraction cords containing epinephrine should be avoided

- Supplemental O_2 should be available
- Rubber dam is contraindicated when it contributes to breathing difficulty.
- NSAIDS other than aspirin should be avoided in pts taking ACE inhibitors (renal damage).
- Erythromycin and tetracycline to be avoided as they may induce digitalis toxicity

CARDIAC ARRHYTHMIA

- **TACHYCARDIA :** Any heart rate faster than 100 beats/minute is labelled tachycardia.

- **BRADYCARDIAS** :A slow rhythm, (less than 60 beats/min), can lead to syncope.

- **HEART BLOCK** :Blockage of cardiac impulse anywhere in the conduction system.

DENTAL CONSIDERATIONS

- A proper history to be taken.
- Stress and anxiety be minimized.
- Short appointments
- Use of epinephrine to be minimized.
- Proper chair position is important, SUPINE.
- At end of appointment chair should be raised slowly to minimize orthostatic hypotension.

- Use of vasoconstrictors should be minimized in pts taking digitalis glycosides.
- The equipments like pulp testers ,ultrasonic scalers ,electrosurgical units ,should not be in close proximity.
- Prophylactic antibiotics before and after treatment in recently placed pacemaker patients.
- Pts who report palpitations or skipped beats must be evaluated by physician.

- Sustained sinus tachycardia above 100 beats/min in resting position is indicative of sinus tachycardia.
- Dental treatment shd not be carried out in patients with irregular pulse.
- Long use of procainamide can cause a lupus like syndrome.
- Drug like quinidine can cause erythema multiforme.
- CA may be induced by general anesthesia and vagal reflex.

ORAL HEALTH CONSIDERATION & ORAL MANIFESTATION

Infective Endocarditis: *Prophylaxis*

INDICATED	NOT INDICATED
✓ Prior history of endocarditis	x Previous rheumatic fever or Kawasaki disease without valvular dysfunction
✓ Cardiac valve disease in a transplanted heart	x Acquired valvular dysfunction x Bicuspid aortic valve
✓ Unrepaired cyanotic congenital heart disease or incompletely repaired congenital heart disease	x Simple atrial septal defect x Mitral valve prolapse with regurgitation x Hypertrophic cardiomyopathy
✓ Congenital heart disease repaired using prosthetic material ✓ A prosthetic heart valve ✓ Valve repair using material prosthetic	x Valve repair without prosthetic material

Acute vs. Subacute Endocarditis

- Acute
  - *S. aureus, S. pyogenes*
  - Time course
  - Patient population
- Subacute → Viridans ←
  - *Enterococcus*, alpha hemolytic Streps, oral cavity microbes
  - Time course
  - Patient population(s)

Prophylactic Antibiotic Regimen

Recommending authority	Regimen
UK: British society for Antimicrobial Chemotherapy (1992)	A. Amoxicillin:3g 1h before treatment B. Clindamycin:600mg 1h before treatment
EUROPEAN CONSENSUS (1995)	A. Amoxicillin:3g 1h before treatment B. Clindamycin:300-600mg 1h before treatment
American Heart Association (1997)	A. Amoxicillin:2g 1h before treatment B. Clindamycin:300-600mg 1h before treatment

ORAL PROCEDURES & NEED FOR ANTIBIOTIC PROPHYLAXIS TO MINIMISE RISK OF BACTERIAL ENDOCARDITIS

- Extractions.
- Periodontal procedures including surgery,subgingival,placement of antibiotic fibers or Strips,scaling &root planning.
- Implant placement.
- Tooth reimplantation.
- Placement of orthodontic bands(not brackets).
- Endodontic instrumentation.
- Intra ligamentary injection.
- Prophylatic cleaning of teeth where bleeding is anticipated.
- Other procedure in which significant bleeding is anticipated.