دانشگاه علوم پزشکی و خدمات بهداشتی درمانی گیلان

Dental management of GERIATRIC patient

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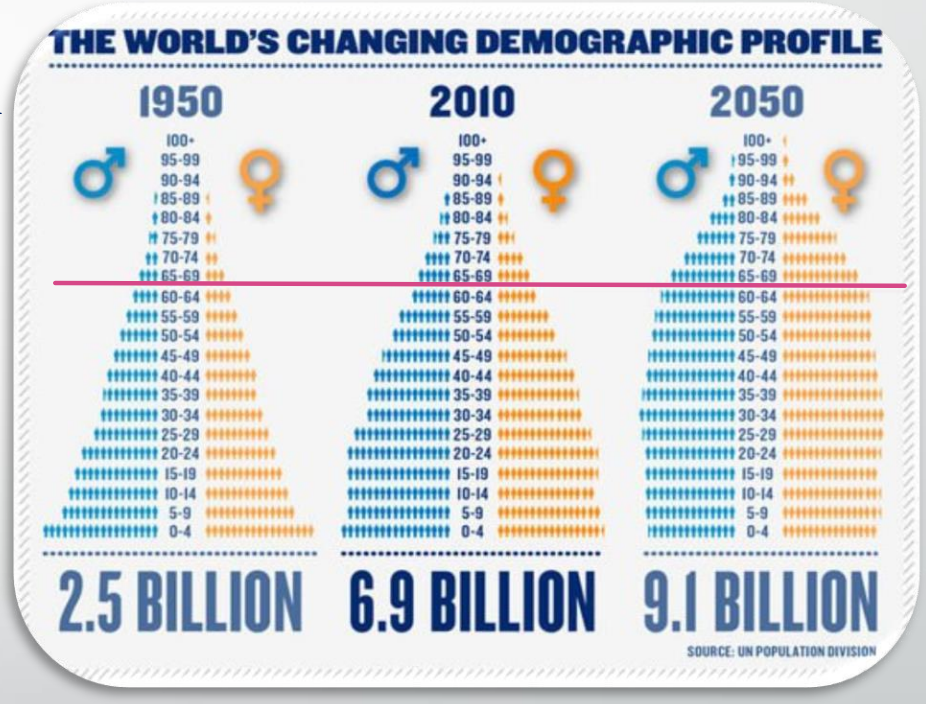
WHY GERIATRICS?

1. People > 65 years are **fastest growing segment** of the population
   - ✓ Advances in medicine
   - ✓ Increased life expectancy
   - ✓ Decline in fertility rates
2. On average, people > of 65 years are expected to report **one or more chronic medical conditions** that require consideration before initiating any dental treatment

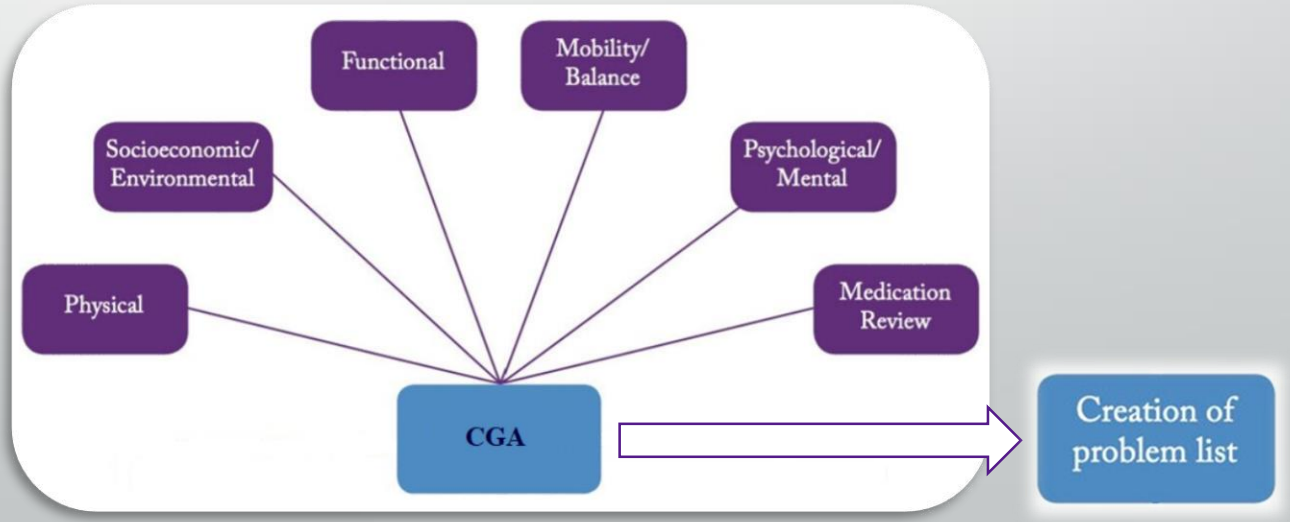


SO:

Oral health-care professionals must possess the tools and knowledge to manage older adults

Comprehensive Geriatric Assessment (CGA)

- Quite different and significantly more complicated than a younger patient
  - ✓ Atypical symptoms or responses to illness
    - For example, a patient presenting with confusion may not actually have a neurologic problem, but instead have an infection
  - ✓ Social and psychological factors can disguise classic disease presentations
  - ✓ Patients are able to mask a disease process, such as dementia (physicians missing the diagnosis)
- A structured assessment, which incorporates a **multidimensional**, **multidisciplinary** approach, is required for these patients:
  - ✓ Patient's functional ability
  - ✓ Physical health
  - ✓ Cognition and mental health
  - ✓ Socioenvironmental circumstances
  - ✓ Medication review



Treatment planning

- Can be complicated, as a **multitude of factors** can affect decision making and provision of care
  - ✓ Limitations due to social, financial, family, medical, physical, and transportation constraints
  - ✓ Older patient's health may change as treatment proceeds
    - Necessitate reassessment
    - Patients, their family, and their caregivers must continually be informed about the fact that treatment needs may change as treatment progresses

Treatment plans **must always be dynamic**

Treatment planning

- **OSCAR** serves to guide dentists in identifying all factors that need to be considered before dental treatment of older patients

  ✓ **O**: Patient's **oral** needs

  Mucosal disease, periodontal issues, dental problems, ...

  ✓ **S**: Assessment of **systemic** factors

  Medical problems, medications, …

  ✓ **C**: Patient's **capability**

  Patient's functional capacity, ability to transport, performing oral hygiene, …

  ✓ **A**: Patient's **autonomy**

  Ability of decision-making, communicate and understand, consent to care, …

  ✓ **R**: Assessment of **reality**

  Medical stability, prognosis, life expectancy, financial limitations, …

Drug considerations

- **Pharmacokinetics** (absorption, distribution, metabolism, elimination) can be altered due to *aging process* or *changes in organ function* (kidneys or liver)
  - ✓ Dose or dosing frequency may need to be altered
- **Pharmacodynamics** (drug's action on the body) can be affected by aging process
  - ✓ Susceptibility to medications that cause sedation as a side effect (Anti- histamines)
    - Comorbidities: risk of falls, confusion, and the inability to perform daily tasks

- Drug related complications:
  - ✓ Polypharmacy
    - Common among geriatric patients
    - Increase the incidence of other Drug-related Complications
  - ✓ Drug–drug interactions, Adverse drug reactions (ADRs), Undermedication, Nonadherence

Drug considerations kidney dysfunction

Drug and Usual Dose	GFR (mL/min) 10–50	GFR (mL/min) <10	Supplement Dose After Hemodialysis
Acetaminophen 650 mg q4h	No adjustment	q8h	No
Codeine 30–60 mg q4–6h	75%	Avoid	No
Ibuprofen 400–800 mg q8h	No adjustment	Avoid	No
lidocaine, Articaine, mepivacaine, prilocaine	No adjustment	No adjustment	
Amoxicillin 500 mg q8h	q8–12h	q12–24h	Yes
Metronidazole 250–500 mg q8–12h	No adjustment	No adjustment	Yes
Clindamycin 150–300 mg q6h	No adjustment	No adjustment	No

Drug considerations liver dysfunction

- Drugs metabolized in the liver should be considered for **diminished dosage** when one or more of the following factors are present:
  - ✓ Elevation of **aminotransferase levels (SGOT, SGPT)** to greater than four times normal
  - ✓ Elevation of serum bilirubin above 35 mM/L or 2 mg/dL
  - ✓ Serum albumin levels less than 35 g/L
  - ✓ Signs of ascites, encephalopathy, malnutrition
- Use of epinephrine (in gingival retraction cord or to control bleeding) must be limited
  - ✓ Especially if portal hypertension is present

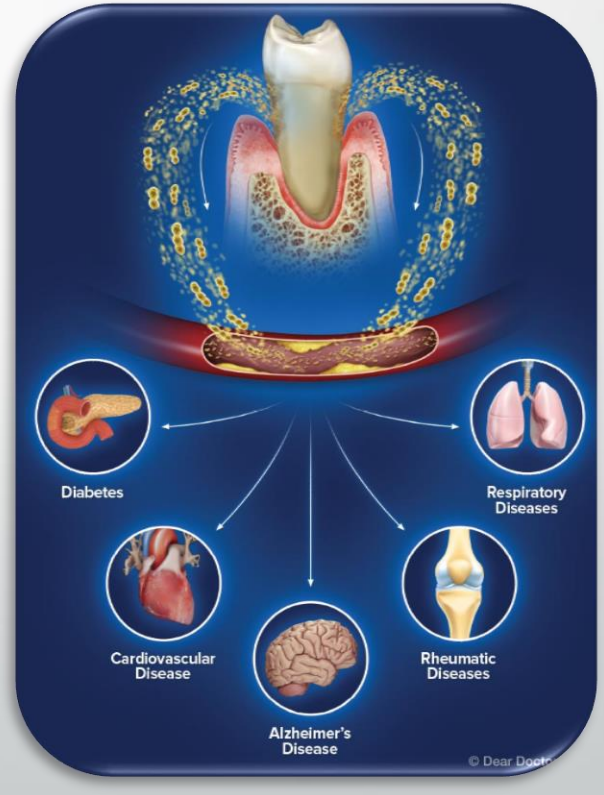
Dental Drugs Metabolized Primarily by the Liver
Local Anesthetics
Lidocaine
Mepivacaine
Prilocaine
Bupivacaine
Analgesics
Acetaminophen
Codeine
Ibuprofen
Antibiotics
Ampicillin
Metronidazole

Health Literacy

- Distinguish health literacy from literacy
  - ✓ patients may be well educated in any number of areas while having limited knowledge about healthcare
- Important to:
  - ✓ Explain things clearly to the patient
  - ✓ Using plain language
  - ✓ Starting with the most important information first
  - ✓ Limiting new information
- Emphasize one to three points and encourage patients to ask questions
- Have written instructions for important information
- Use **teach-back method** to confirm the patient's understanding
  - ✓ Ask the patient to explain what they were just taught by asking questions that begin with how and why rather than close-ended yes or no questions. (Do not ask the patient, "Do you understand?")
- Ensure agreement and understanding from the patient about the care plan

Systemic diseases review

- Most common systemic diseases among functionally independent older adults include:
  - ✓ Hypertension
  - ✓ Ischemic heart disease
  - ✓ Diabetes mellitus
  - ✓ Chronic obstructive pulmonary disease
  - ✓ Cerebrovascular accidents
  - ✓ Arthritis
  - ✓ Alzheimer disease
  - ✓ Parkinson disease



Hypertension

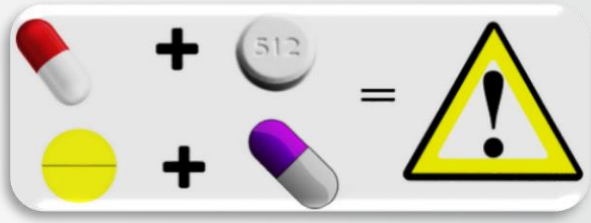
Dental Management

- Long or stressful appointments are best avoided (**Short morning** appointments)
- Anxiety reduction by oral premedication (**Short-acting benzodiazepine** such as triazolam, 1 h before appointment)
  - ✓ Sedatives may be used for hypertensive patients (dosage need to be reduced, specially in older adults)
- Nitrous oxide plus oxygen for inhalation sedation (intraoperative anxiolytic)

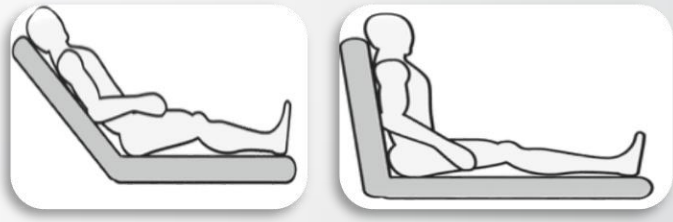
1. BP of < 180/110:
   - ✓ Can undergo **any necessary** dental treatment (very little risk of an adverse outcome)
2. BP of ≥ 180/110 (uncontrolled hypertension):
   - ✓ Elective dental care should be **deferred**
   - ✓ Urgent (pain, infection, bleeding) necessitate dental treatment/ in consultation with physician
     - Intraoperative BP monitoring, ECG monitoring, IV line, sedation, …

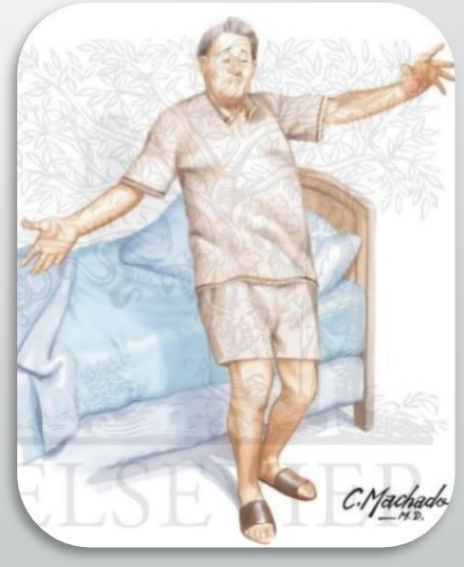
- Treatment of a patient with upper-level stage 2 hypertension (180>**≥160 Or 110> ** ≥100):
  - ✓ Leave BP cuff on patient's arm and to periodically check pressure
  - ✓ If BP rises > 179/109, procedure should be terminated, patient referred to physician, and appointment rescheduled

Dental Management
Drug considerations



- Benefits of use of epinephrine outweigh increased risks, if:
  - ✓ **1 or 2** cartridges of 2% lidocaine with **1:100,000 epinephrine** are used at one time
  - ✓ Care is taken to avoid **inadvertent IV** injection
- Levonordefrin should be avoided in all patients with hypertension
- In prosthetic procedures, **avoid** using **gingival retraction cord** that contains epinephrine
  - ✓ Alternatives: tetrahydrozoline, oxymetazoline, phenylephrine
- Some antihypertensive agents, tend to produce orthostatic hypotension as a side effect
  - ✓ Patient should be physically supported while slowly getting out of the chair
- **Erythromycin/clarithromycin** exacerbate hypotensive effect of CCBs
- Efficacy of antihypertensive drugs may be decreased by prolonged use of **NSAIDs**
  - ✓ Use of NSAIDs for a few days is of little clinical importance





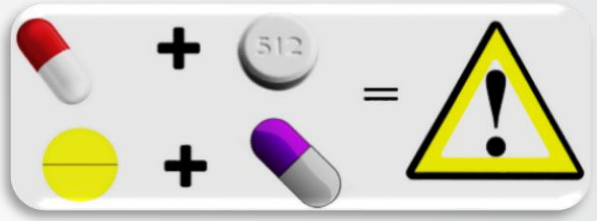
Ischemic heart disease

Dental Management

- Patients with **stable angina** or a **past history of MI** without ischemic symptoms and no other risk factors :
  - ✓ Short appointments in the morning
  - ✓ Comfortable chair position
  - ✓ Reduced stress environment
    - Oral sedation/ N2O sedation
  - ✓ Availability of nitroglycerin
  - ✓ Profound local anesthesia
  - ✓ Limited amount of vasoconstrictor
  - ✓ Avoidance of epinephrine retraction cord
  - ✓ Effective postoperative pain control

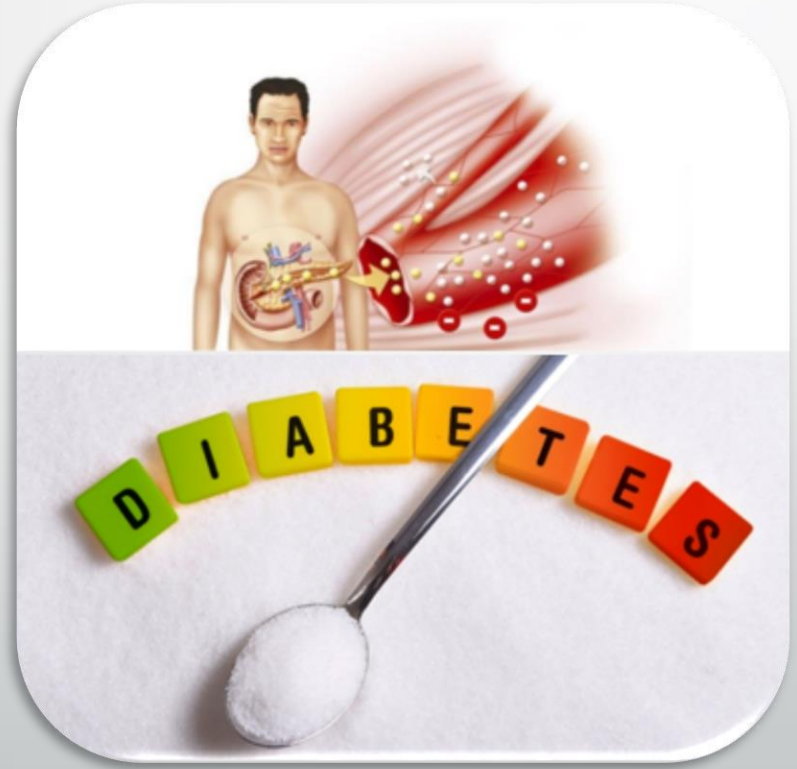
- Patients with **unstable angina** or those who have had an **MI within the past 30 days:**
  - ✓ **Elective care should be postponed**
  - ✓ If treatment becomes necessary (urgent)
    - Consultation with the physician is advised
    - Require a **hospital dental clinic**
      - IV line
      - Continuously monitoring ECG and vital signs
      - Using a pulse oximeter
      - nitroglycerin **prophylactically** just before treatment

Dental management
Drug considerations



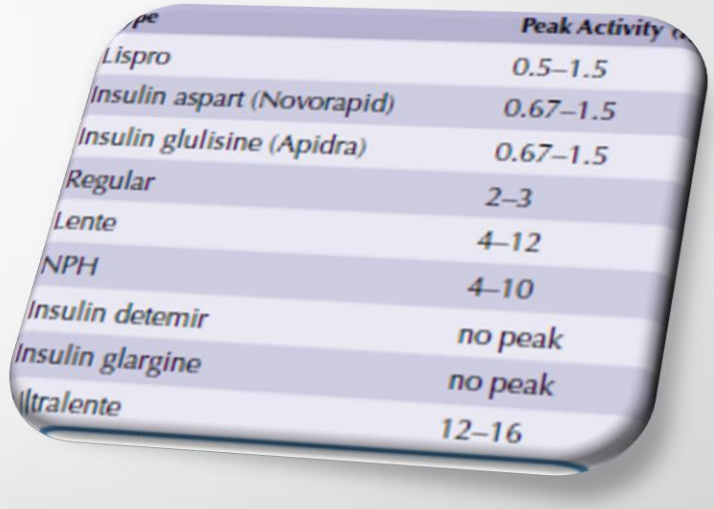
- Patients who take daily **aspirin** or other antiplatelet agents (e.g., clopidogrel):
  - ✓ **Discontinuation** before dental treatment is **unnecessary**/ use local measures to control bleeding
- Patients who are taking **warfarin** for anticoagulation:
  - ✓ Safely undergo procedures with **INR of ≤ 3.5** (within 24 to 72 hours)
- **NSAIDs** (except for aspirin) should be **avoided** in patients with coronary artery disease (especially with history of MI)
  - ✓ Increase the risk for a subsequent MI, even after only 7 days of NSAID administration
  - ✓ If an NSAID is used, **naproxen**, administered for **< 7 days**
- **Should not** prescribe **macrolide** antibiotics (erythromycin/clarithromycin) with **atorvastatin**, pravastatin, simvastatin
  - ✓ Increases risk of **rhabdomyolysis** (myalgia and muscle weakness)

Diabetes mellitus



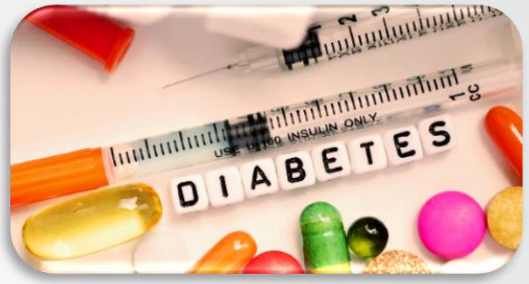
Dental Management

- Elective dental care: 70 < FBS <200
- Best time: before or after periods of peak insulin activity/ best in the morning
- Patients should take usual insulin and eat normal meals before appointment
- **Most likely and serious** complication of DM in office is inadvertent **hypoglycemia**
  - ✓ Confusion, sweating, tremors, agitation, anxiety, tingling or numbness, tachycardia, seizures or loss of consciousness
- As soon as patient experiences signs or symptoms of hypoglycemia:
  - ✓ Check the blood glucose with glucometer (best strategy)
  - ✓ If glucometer is **unavailable** >>> treat as hypoglycemic episode:
    - For **conscious** patients: glucose drink (non-diet coca , 2 teaspoons of table sugar)
    - For **unconscious** patients (medical emergency):
      - prompt institution of first aid/ **intramuscular** administration of **glucagon** (1mg)
    - Signs and symptoms of hypoglycemia should resolve in 10 to 15 min
    - **Recheck** with glucometer
    - Carefully observe for 30 to 60 min after recovery



Peak Activity
Lispro 0.5–1.5
Insulin aspart (Novorapid) 0.67–1.5
Insulin glulisine (Apidra) 0.67–1.5
Regular 2–3
Lente 4–12
NPH 4–10
Insulin detemir no peak
Insulin glargine no peak
Ultralente 12–16

Dental Management
Drug considerations



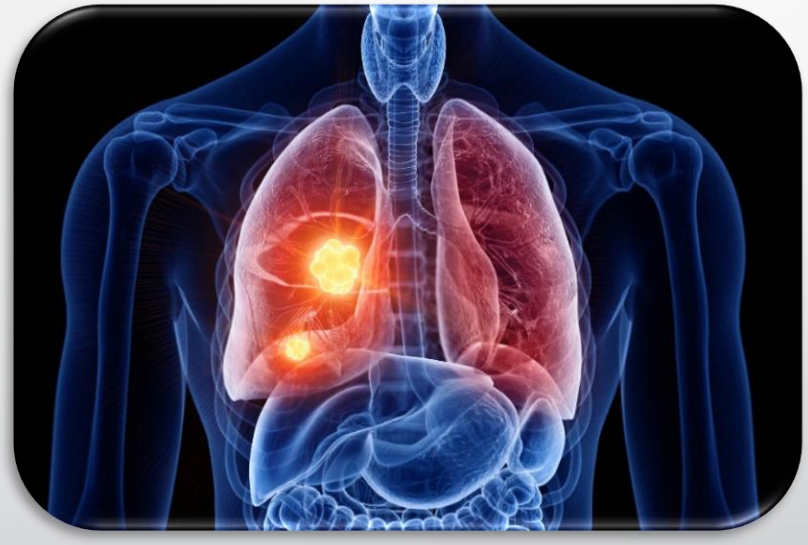
NSAIDs
azole antifungals
beta-blockers
Salicylates

\+ Sulfonylureas (**Glibenclamide**) → **Hypoglycemia**

- **Simultaneously** cure the oral **infection** and control blood **glucose** level:
  - Patients who are receiving insulin require **additional** insulin
  - Non–insulin-controlled patients may **include insulin** in this period
- Dentist should treat infection **aggressively** (incision/ drainage, extraction/pulpotomy, warm rinses, antibiotics)
- Antibiotic **sensitivity testing** is recommended for:
  - ✓ Patients with brittle diabetes
  - ✓ Those who require a high insulin dosage for control
  - ✓ For above patients, **penicillin** therapy can be initiated:
    - If response is poor, more effective antibiotic can be selected on basis of sensitivity testing

Chronic obstructive pulmonary disease

COPD

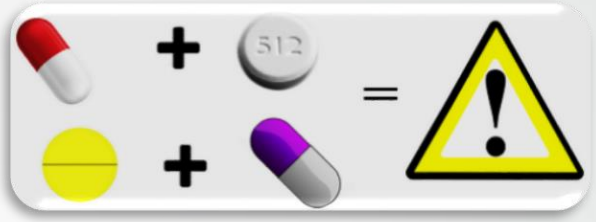


Dental Management

Stage **I**: Mild	80% ≤ FEV1
Stage **II**: Moderate	50% ≤ FEV1 ≤ 80%
Stage **III**: Severe	30% ≤ FEV1 ≤ 50%
Stage **IV**: Very severe	FEV1 ≤ 30%

- History of smoking tobacco with a cough, exertional dyspnea: **refer** to a physician
- Before dental care, assess the **severity** of disease
- Dental care **can** be provided for stages **I to III (avoided** in patients **stage IV)**
  - ✓ Supplemental low-flow O2 (rate of 2 to 3 L/min) provided when saturation level is <95%
- Bilateral mandibular/palatal blocks can cause an unpleasant airway constriction sensation
  - ✓ Low-flow O2 alleviate the unpleasant airway feeling
- Avoid use of **rubber dam** in patients with stage **III** disease
- If sedative medication is required, low-dose oral diazepam may be used
- Nitrous oxide–oxygen inhalation sedation is **avoided** in stage **III or IV** COPD
- Chair Position:
  - ✓ Stage II or III should be placed in a **semisupine or upright** chair position

Dental Management
Drug considerations



- **Narcotics** and **barbiturates** should **not** be used (respiratory depressant)
- **Anticholinergics** and **antihistamines** should be used with **caution**
  - ✓ Drying properties/ increase in mucus tenacity
- **Macrolide antibiotics** (erythromycin/ azithromycin) and **ciprofloxacin** hydrochloride should be **avoided** in patients taking **theophylline**
  - ✓ Theophylline toxicity (anorexia, nausea, nervousness, insomnia, agitation, thirst, vomiting, headache, cardiac arrhythmias, convulsions)
- Courses of antibiotics for upper respiratory infections, **oral** and lung flora may include **antibiotic resistant** bacteria

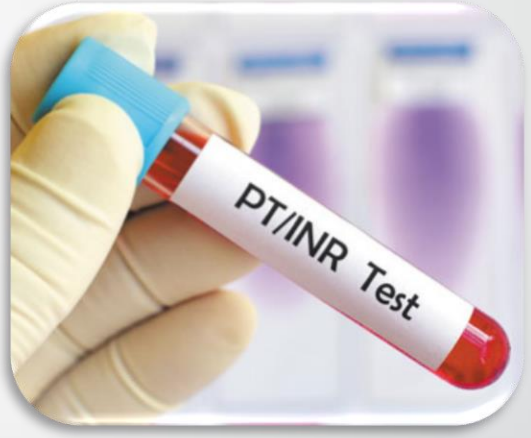
Cerebrovascular accidents
CVA

Dental Management

- Assess patient risk
  - ✓ Aids in decision-making regarding **timing** and **type** of dental care to be provided
  - ✓ Up to 1/3 of strokes **recur within 1 month** of initial event
  - ✓ Risk remains elevated for **at least 6 months** (**deferral** of treatment for **6 months**)
- Use of **appointments** that are free of stress and anxiety/ Pain control is important
  - ✓ Short/ midmorning/ N2O (good oxygenation at all times)
- **"Neglect" syndrome**: not to overestimate abilities (good verbalization skills may mask extent of paresis)
  - ✓ **Assisted transfer** to the dental chair may be needed
- **Blood pressure** should be monitored to ensure good control
- Patients with residual physical deficits:
  - ✓ **Extensive** bridgework is **not** a good choice/ **fixed** prostheses are more desirable
  - ✓ Hygiene often is facilitated by:
    - Electric toothbrush/ large-handled toothbrush/ water irrigation device
    - **Flossing aids** should be prescribed (family members/personal care providers should be instructed)
    - Frequent professional prophylaxis (topical **fluoride** and **chlorhexidine** are advisable)

Drug considerations

- Patients who take coumarin: risk for abnormal bleeding
- Status of coumarin anticoagulation is monitored by INR
  - If **INR is ≤ 3.5**
    - Acceptable for most dental procedures
  - If **INR is >3.5** and oral **surgery** is planned
    - Significant bleeding may occur/ physician should be **consulted**
    - **Metronidazole** and tetracycline may increase INR
      - concurrent use, probably should be **avoided**
  - **Aspirin** should be **avoided** for postoperative dental pain
    - better managed with **acetaminophen**



Arthritis

Dental Management

- Diminished manual dexterity can affect their ability to maintain adequate oral hygiene
- Toothbrushes with specially **adapted handles**:
  - ✓ Bicycle handle grip
  - ✓ Addition of a tennis ball
  - ✓ Electric or sonic toothbrushes
- Short appointments in the **late morning** or **early afternoon**
  - ✓ Joint stiffness and pain tends to improve during the day
- **Supine** positioning may be **uncomfortable**
- Need neck and leg **support**
- Assistance ambulating as well as transporting of the dental chair
- Caution to minimize adverse outcomes, such as falls

Alzheimer

Dental management

- Requires knowledge about Stage of disease: **Mild to moderate** can receive routine dental treatment
  - **Mild** stage:
    - Good oral health should be quickly restored (progressive nature of disease)
  - **Moderate** stage:
    - Treatment consists of **maintaining dental status** and **minimizing deterioration**
    - Complex procedures should be performed, if at all, before moderate to advanced stage
  - **Advanced** stage:
    - ❖ Often are Anxious, hostile, and uncooperative in the dental office and very difficult to treat:
      - **Short** appointments and **noncomplex** procedures
      - Use of **sedation** for more complex procedures (in consultation/ Chloral hydrate, benzodiazepines)
      - Removable prosthetic may have to be taken from patient (Danger of self-injury)
      - All treatment should be provided with the knowledge that ability to maintain proper daily oral hygiene can become severely compromised

Dental management

- Determine whether the patient is legally able to make rational decisions
- Communicate using short words and sentences
- Repeat instructions and explanations
  - ✓ **Positive nonverbal communication** can be very helpful:
    - Facial motion/body posture of dentist should show **support/** Eye contact/ Smiling/ Touching the patient on the arm
- Antipsychotic drugs can cause:
  - **Agranulocytosis**
  - **Leukopenia**
  - **Thrombocytopenia**
  - **Muscular problems (**dystonia and dyskinesia in the oral and facial regions**)**
    - Adjustment of prostheses
  - **Xerostomia**
    - Aggressive preventive program: Oral hygiene education/Prophylaxis, fluoride gel/3-month recall

Parkinson disease

Dental management

- For patients unable to provide adequate oral hygiene, **alternative solutions** should be provided:
  - ✓ Oral hygiene education/fluoride gel, chlorhexidine rinses/3-month recall/Assisted brushing, **curved toothbrush**
- Patient **should be assisted** to and from the chair/ chair should be **inclined slowly**
- Dental care at the time their medication has **maximum effect** (2–3 hours after taking it)
- Tremors movements may warrant use of **soft arm restraints** or **sedation** procedures
  - ✓ Antiparkinsonian drugs can be CNS depressants so dentally prescribed sedative may have an additive effect
- Limit the dose of epinephrine to **two carpules** 1:100,000 **epinephrine** in patients who take *Tolcapon* or *Entacapone*
- **Erythromycin** should not be given to patients who take dopamine agonist *pramipexole*

ANY QUESTION?