**#5**

**The prescription must be written clearly with: full patient name, date of birth, signature, address, full name of drug, dose, frequency. Avoid trade names, decimal points, latin.**

**The important things in prescription: name of patient, age, total number of days of treatment, generic name of the drug, instruction how to take the drug.**

**Commonly used abbreviation: PRN (per needed) PO (orally) TDS (3 times per day) QDS (4 times per day)**

-**Children take syrup (usually syrups are high in sugar> caries).**

**-Elderly people sometimes have exaggerated reactions to drugs. And are highly susceptible for drug interactions due to multiple medications they take.**

**-Pregnancy: It is dangerous to prescribe drugs in the first trimester because of teratogenic effect is highest. There is classification of drugs in terms of side effects on pregnancy:**

1. **: human studies with no side effect (safest to use)**
2. **: animal studies without side effect but no human studies**
3. **: animal studies with side effect but no human studies**
4. **: human studies with teratogenic effect**

**(X): animal and human studies with teratogenic effect**

**The best drug to prescribe is (A) but most drugs are (B) and (C) so**

-**NSAIDS>** **Patients that have peptic ulcer are at particular risk from NSAID because it increases the risk of GI bleeding. Patient with bleeding disorders also contraindicated because NSAID have effect on enzymes in the platelet. Also patients that are taking anticoagulants and children under 12 are contraindicated especially aspirin for children under 12 because there is risk of hepatic encephalopathy (Reye’s syndrome). It also can cause bronchospasm in asthmatic patients and can cause bleeding in the the third trimester of pregnancy. It can also cause enhance bleeding in patients with liver or renal disease.**

-**paracetamol> The maximum adult dose of paracetamol is 4 grams daily (8 tablets). After that there will be hepatic toxicity or liver failure.**

**-Abx> in most oral surgeries we don’t need prophylactic antibiotic excpect if the patient is immunocomprimised. Therapeutic indications for antibiotic: if the infection has systemic manifestations, facial space involvement, rapid spread of infection, inadequate drainage, immunocomprimised patient.**

**augmentin (amoxicillin + clavulanic acid)** the function of **clavulanic acid is to inhibit the beta lactamase enzyme.** **Metronidazole is commonly used used for anaerobic infection. Clindamycin is used for patient with allergy to penicillin but it is more commonly reported to cause pseudomembranous colitis.** **10% of patient with allergy to penicillin have cross sensitivity to cephalosporin.**

**-Antifungal > usually topical, systemic is used in** **sever candida infection or immunocomprimsed (like miconazole or flocunazole.)**

**-Antiviral > only in severe viral infections or immunocompromised pts.**

**#6**

**Diabetes :**

- **disregulation of carbohydrates, protein and lipid metabolism.**.

**\**Type 1 diabetes :***

**-it's an immune mediated condition affecting children and young adults. Insulin dependent. Insulin deficiency. .**

***\*Type 2 diabetes*** *:*

-**type 2 has 2 things : 🡪impaired insulin secretion**

 **🡪and insulin resistance.**

**\*Classical features of diabetes :**

**-polyuria.**

**-polydipsia (thirst)**

**-rapid weight loss.**

**-thirst might be explained as xerostomia , and can be the 1st manifestation of diabetes , so you have to take detailed history from your pts to look for other signs of diabetes like** :

-**fatigue**

**-blurred vision**

**-frequent infections**

**-slow wound healing .**

**1.Fasting glucose level :**

**If it was >126 mg/dl then the pt is diabetic.**

**2.Random blood glucose :**

**-if >200 mg/dl then the pt is diabetic.**

**3.Glucose tolerance test :**

**-they give the pt a known amount of glucose (75 mg ) and after 2 hours they measure the glucose level in blood , if it was >200 mg/dl then the pt is diabetic.**

4**.HBa1c or glucated HB :**

**-give an accurate measure of glucose level over a period of 3 months .**

**-normal value < 6 ( means that <6% of RBCs are attached to HB)**

**-(5.7-6.4) is the acceptable range .**

**-if >6.5 the pt is diabetic .**

**-the higher the value -🡪 more complications and less control on diabetes.**

**Acute complications :**

**1.hypoglycemic coma**

**2.hyperglycemic coma or diabetic ketoacedosis: ( more in type I,**

**-severe dental infections might cause diabetic ketoacedosis so immediate and good management of dental infections is v.imp. in such pts.**

3**.hyperglycemic hyperosmolar coma: (type 2)**

**\*The ideal condition for a diabetic pt is to:**

**- have his pre-prandial blood glucose (before eating ) between (90-130).**

**-bed time glucose between (100-140)**

**- post prandial glucose <180**

**-and HBa1c <7**

**-manifestations of diabetes in the oral cavity are non-specific and include :**

**🡪xerostomia**

**🡪syalosis (swelling of parotid glands bilaterally)**

**🡪lack sensation in tongue and oral mucasa**

**🡪candidal infection**

**🡪periodontal diseases are more common and severe**

**🡪increased susceptibility to infections**

**\*dental treatment of diabetic pts can be influenced by :**

**1-type and severity 2- extent of procedure 3-if the pt have other serious complication.**

**-Any non-emergency elective procedure (no pain or swelling ) must be delayed until the pt gets his blood sugar controlled.**

**-Dental treatment makes the pt more susceptible to hypoglycemic coma.**

**-Surgical procedures should be avoided if glucose level is >180mg/dl** , **because there is an increased risk of infection and delayed wound healing .**

**-Dental treatment for diabetic pts is best provided early in the morning after the pt has eaten his breakfast and took his medication .and the procedure should be kept short and stress free.**

**-Emergencies:**

**🡪Hypoglycemic coma :**

**-it's the most common.**

**-if not treated immediately might be life threatening**

**-signs of hypoglycemic coma:Nervousness, confusion, sweating, tremor, anxiety, numbness or tangling in the oral cavity .**

**If severe might cause seizures and loss of consciousness .**

-**management of hypoglycemia :**

**\*\*if the pt is conscious :give him glucose either in the form of juice or sth sweet.**

**\*\*if the pt is semi or unconscious : give glucose iv or im or subcutaneous.**

**Ideally we give the pt 1 mg glucagon im .**

**-if any diabetic pt has coma you always manage it as hypoglycemia until proven otherwise.**

**-it’s said that periodontitis increases the resistance to insulin therapy so educate pts about OH.**

**Adrenal glands:**

**-it has 2 parts:**

-**cortex 🡪secrets gluco-corticoids and mineralo-corticoids**

**-medulla 🡪secrets epinephrine and nor-epinephrine.**

**\*Primary adrenal insufficiency or Addison disease** :

 **\*secondary insufficiency :**

**-it's more common than primary.**

**-the most common cause is corticosteroid therapy (because external steroids negative feedback inhibition for the cortex and it stops secreting cortisone )**

**\*oral Signs of adrenocrtical insufficiency:**

**-mucocutaneous pigmentation. This sign is v. imp. Because it might occur in the oral cavity and be a diagnostic sign of Addison disease or adreno-cortical insufficiency. mucocutaneous pigmentations that appear in elderly pts due to 2ndry insufficiency are similar to smoking melanosis or racial pigmentation**

**-sometimes the stress associated with dental procedures makes the pt susceptible to adrenal crisis (also called adrenal insufficiency, has a high mortality rate ).**

**\*signs of crisis :**

**-hypotension**

**-hypoglycemia**

**-bradycardia**

**-dehydration**

**-loss of consciousness**

**-pts with adrenal insufficiency whether it was1ry or 2ndry or pts on steroid therapy for the treatment of any disease are at a higher risk of adrenal crisis during dental treatment and therefore should be given prophylactic cover before any stressful procedure.**

**-should an adrenal crisis occur , there's a well known emergency management :**

**🡪give the pt an emergency dose of steroids (200 mg of hydrocortisone**

**🡪if the pt is hypoglycemic give him glucose**

**🡪call the emergency**

**\*200 mg of hydrocortisone is the emergency dose for adrenal crisis and for pts with any allergic rxn .**.

**\* if the procedure was long and stressful or if the pt is on steroids or was on steroids anytime through the past year , then he must be given a steroid cover .**

**-the cover dose differs ; either :🡪 200 mg of iv hydrocortisone before the procedure or**

**🡪 you ask the pt to double the daily dose at the day of the procedure**

**\*Cushing disease or syndrome :**

**--excess cortisol**

**one of the causes:**

**\*systemic steroids are imp. Because many pts use it for the treatment of variety of conditions like : asthma, RA, lymphoma, SLE, kidney transplant and can be used for the treatment of oral conditions.**

**\*pts on long term steroids have an increased risk of malegnancies like lymphoma and squamous cell carcinoma.**

**\*oral manifestations of excessive steroid therapy :**

**-moon face**

**-oral candidiosis (the main oral side effect of steroids whether it was topical or systemic )**

**\*steroids in oral medicine are used for the treatment of severe oral ulcerations, vesiculobollus diseases, facial palsy and herpes zoster, giant cell arteritis and before surgical procedures like wisdom extractions (we give dexamethasone to reduce post operative edema ).**

**\*Pheochromocytoma :**

**It’s a tumor of adrenal medulla, causing excessive production of epinephrine and nor-epinephrine.**

**-might be associated with neuorofibromatosis**

**-signs : similar to conditions were there's excessive production of epi and nor-epi , including :**

**🡪anxiety**

**🡪palpitation**

**🡪sweating**

**🡪HTN**

**🡪headache**

**-any pt with untreated pheochromocytoma should have their elective dental treatment delayed .**

**-dental treatment might be complicated by arrhythmia, HTN and anxiety .**

**#7**

**Glands:

1) Pituitary Gland: located in the sella turcica,
posterior lobe excretes only ADH and oxytocin; so the anterior lobe is more important as it secretes GH, ACTH, TSH and FSH, LH.

\*Acromegaly or Giantisim : excessive secretion of GH
if it occurred before the fussion of bone (childhood) giantism occurs, if after acromegaly occurs which is more common.
oral symptom : senlargement of tongue, spacing of teeth and mandibular prognathism (class 3).
- Dental treatment may be complicated by hypertension. GA is avoided.
maxilla is not affected because the mandible has the condyle which is an active center and maxilla doesn't have one.**

 **2) thyroid Gland: situated anterior to the thyroid cartilage

it secretes thyroxin T4 and T3.
enlargement =goiter.
\*\*-Hypothyroidism: could be primary (due to a problem in the thyroid gland, low T4 and high TSH (to compensate)) or secondary (due to a problem in the pituitary in TSH, low T4 normal or low TSH)
-Symptoms: weakness, tiredness, cold intolerance, hair loss , pallor, constipation, doesn't concentrate, always sleepy, low metabolic function, enlarged tongue.
ttt: thyroxine replacement therapy.
-Dental aspects: if the patient is controlled the treatment under local anesthesia is safe, but if he is not controlled infections or drugs (anxiolytics, GA) may cause coma (myxodema coma) after hypertension and hyperthermia.
\* it may be associated with poor wound healing and susceptible infections.
oral manifestations are uncommon but include: dry mouth, enlarged tongue and facial puffiness.

\*\*-hyperthyroidism: increased metabolic functions
Thyrotoxicosis is a clinical manifestation due to excessive thyroid hormone.
-Most common cause is Grave's disease; autoimmune disease. other causes are Hashimoto's, thyroid adenoma, thyroiditis and multinodular goitre.
-Symptoms: weight loss, heat intolerance, sweating, anxiety, led lag, led retraction and exophthalmous.
-ttt: medications (anti thyroid drugs) and B blockers for hypertension, or removal of thyroid and giving the patient radioactive iodine.
- Dental ttt is safe under local anesthesia for controlled patients. but they may have irritability so it's preferred to give them sedatives before dental ttt.
GA or trauma may cause thyroid crisis; which is the production of thyroid hormone in an excessive manner in a short period that causes tachycardia, hypertension and vomiting, fever and death.
antithyroid drugs may cause agranulomatosis which affect the WBC so the patient becomes more susceptible to infections and oral ulcerations.

3) Parathyroid Glands: 4 glands situated on the posterior part of the thyroid parathyroid hormone which promotes Ca absorption from the bone, and from the renal tubules. So increased parathyroid hormone causes hypercalcemia.
PTH also triggers Vitamin D3 function, and inhibits phosphorous absorption from renal tubules.

\*Hypoparathyroidism:
- Clinical features: (hypocalcemia) excitability or irritability, schpostick sign( when tapping the facial nerve contraction of facial muscles occur)
- dental ttt is safe under LA if the pt is controlled, epilepsy and psychosis and dysarrythmias may complicate the dental ttt.
facial parasthesia is a complication of hypoparathyroidism.
---idiopathic congenital hypoparathyroidism is associated with enamel hypoplasia, short roots, delayed eruption and mucocutaneous candidiosis, it's part of the polyendocrinopathy syndrome which includes mucocutaneous candidiosis.

\*Hyperparathyroidism: is more important in teeth, excessive production of parathyroid hormone
primary: adenoma in PT gland or hyperplasia
secondary: renal failure or calcium abnormal absorption.
tertiary: autonomous PTH secretion because of persistent secondary hyperparathyroidism.

-symptoms: dry mouthrenal stones, peptic ulcers and bone diseases.
\*erupted teeth are not affected.

-Dental ttt: the patient may not be able to take medications because of peptic ulcers
susceptibility to fractures after extractions and cardiac dysarrhythmias.
-Oral manifestations: loss of lamina dura, generalized bone verification and giant cell lesions.(brown tumor of hyperparathyroidism) as multiple radiolucencies especially in middle aged women.
in this case if the patient was treated from hyperparathyroidism the cyst will fade away.**

**#8**

**\* Liver relation with teeth:**

**- There are three things that affect our job with patients with liver diseases:**

 **1- Liver disease patients has an impaired drug metabolism: so if we want to prescribe drugs for him, we should change the drug of choice or decrease the dose.**

 **2- Bleeding tendency: due to lack of synthesis of the clotting factors. 3- Increase the probability of the transmission of infection due to hepatitis.**

**\*\*\* Hepatitis:**

**1- Hepatitis A:**

**- Common infection affects always school students. - Symptoms like common cold (fever, malaise, weakness). - Acute infection. - Transmitted mainly through contaminated food and drinks.**

**\* Diagnosis: - According to the clinical features, the patient has an elevation of the liver enzymes and IgM antibodies (like any other acute infection).**

**\* Dental treatment: - There is no elective dental treatment for the patient who has acute hepatitis until he is cured. – There is a debate on salivary transmission of hepatitis A, but the main rout of transmission is feco-oral through contaminated food, there is no transmission through saliva.**

**2- Hepatitis B:**

**- Common: there are a lot of people who are infected with it and they don’t know. - DNA virus. - Transmitted through body fluids in general: all body secretions contain hepatitis B ( blood, saliva)** - **There are some patients who have higher risk of transmission like: IV drug abusers, blood transfusion in the past, renal dialysis pts…**

**- More than half of the patients are subclinical so there is a high percentage of patients don’t know that they have hepatitis.**

**\* Symptoms: - All the liver diseases and infections have the same symptoms: jaundice, weakness, abdominal pain, fatigue, mild fever, change in the color of the urine (dark)and the stool (clay)**

**Why imp to know? Source of infection, might result in liver cirrhosis and carcinoma.**

**- no cure.**

**- Cross infection: (6-40)% of needle stick injuries from a patient who has hepatitis cause infection especially if the person who has the needle stick injury is not vaccinated or he is vaccinated but has low titer.**

**-can transmit through saliva (even though saliva has small amount of virus)**

**3- Hepatitis C:**

**- It is the only RNA virus.** - **Doesn't have a vaccine**.

**-lower infectivity than HBV.**

**-transmitted through body fluids.**

**- Hepatitis C: more than 90% of the patients are subclinical or asymptomatic.**

**- The diagnostic test is the same: antibodies against hepatitis virus.**

**\* Oral manifestations: (special ones)**

 **1- Xerostomia. 2- Parotid swelling. 3- Lichen planus.**

**4- Sjogren syndrome (one of the causes is HCV)**

**\*\*\* Liver cirrosis:**

**1- Impaired drug metabolism. 2- No synthesis of growth factors. 3- No clotting factors. (will result in bleeding tendency). 4- No hormones.**

**\* Clinical features:**

**Some symptoms like:**

**Jaundice. Contractures of the hands (characteristic of the liver disease). Easy bruising ,Skin pigmentation.**

**\* Management: - according to the cause, if alcohol stop.if hepato-toxic drugs stop.**

**\* Dental aspect: 1- Sialosis (bilateral enlargement of the parotid gland) 2- Halitosis. 3- Lichen planus. 4- Nutritional deficiency (glossitis, candidal infections, angular chelitis). 5- Hemorrhage after dental procedures. 6- Jaundice.**

**\* We should make bleeding profile for any patient with liver cirrhosis history especially if we want to do extraction or any procedure with bleeding:**

 **- INR (international normalized ratio), - Bleeding time: if it is high then it is thrombocytopenia (no platelets) because liver patients have splenomegaly (the spleen destroys blood cells including platelet).**

**\* There is an impaired drug metabolism, so it is hard to prescribe drugs to chronic liver diseases patients, even paracetamol which is considered the safest drugs is dangerous for them, so we have to talk with the hepatologist before prescribing any drug especially in the severe cases.**

**\*\*\* Drug prescription: - we can prescribe any drug but after reducing the dose according to specific calculations depending on the liver enzymes but there are some drugs safer than the others like which are metabolized in the kidney.**

**- Antibiotics: That are mainly metabolized in the kidneys like amoxicillin (mostly in the kidney and little in the liver).**

**- Analgesics: paracetamol is hepato-toxic, profen is metabolized in the kidney but it is contraindicated because it increases bleeding tendency.**

**4- Hepatitis D and E: - They are rare and usually are co-infection (can’t cause infection alone). -Hepatitis D is usually with hepatitis B virus and makes more severe disease.**