Sheet 26 oral surgery

Please refer to slide number 26

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**Cardiovascular diseases**

Cardiovascular diseases it’s associated with problems affecting the heart and the blood vessels.

-generally speaking the oral maxillofacial surgery has minor effect on vital organs including the heart and the vessels , generally things are relatively stable and we have a minimal effect on these systems

-phsyiological stress and general anesthesia could produce stress that it’s higher than minor surgery itself which can lead to serious morbidity and mortality that’s why sometimes it’s preferable to do simple procedures under local anasthetics to decrease the risk of developing stresses and to avoid general anesthesia .

- Ischemic heart disease is a common disorder the patients have

- **So what’s ischemic heart disease ?**

It’s insuffiecient blood supply to the myocardium due to coronary artery obstruction and narrowing of the lumen of these arteries due to many causes and spasm, which will lead to certain clinical diseases that starts as angina pectoris(stable or unstable ) and might also lead to myocardial infarction.

So basically the ischemic heart disease it occurs when the heart is not getting enough blood supply due to the narrowing of the coronary arteries .

When the patient comes to you with chest pain upon exercising or stress he might having angina pectoris .

So what’s the difference in between the stable and unstable angina pectoris ?

>> Stable angina the patient here is having chest pain when exercising or during a stressful condition.

Whereas unstable angina might occur when the patient is at rest thus this indicates a more severe type of angina

These patients they usually take GTN (nitroglycerin ) which causes vasodilatation of the peripheral vessels mainly to the coronary artery

So remember that’s its important for such patients to bring their medications when coming to us asking for dental treatment.

>>Nitroglycerine is giving sublingually.

**now what’s the importance of asking for ECG in patient with ischemic heart disease or patients having angina pectoris seeking dental treatment ?**

Generally speaking in these patients ECG it’s not important because no abnormalities will be detected .

Whereas recent myocardial infarction patients will have ST elevation that will detect a history of MI but ofcourse we as a dentist wont perform an ECG in the dental clinic but it’s important to know such information for the sake of the treatment plan that should be provided to such patients

So when any changes in the ECG detected we can suspect a history of MI .

Chest xray can be helpful it gives us an idea about the size of the heart .

* patients above 50 years old coming to the hospital they are asked to do a routine CBC ,urine electrolyte and chest x-ray (to rule out the presence of any cardiac hypertrophy which is the enlargement of the heart size that could be due to congestive heart failure or a certain heart disease ).
* before surgery all these previous diseases such as ischemic heart disease must be controlled.
* So take the patients history ,make sure that the patients disease is well controlled and that he takes his necessary medications ,for example if he has a mild angina that is controlled and he is taking his medication( which is nitroglycerine) you can start your treatment .
* it’s very important to ask the patients with a history of myocardial infarction when it happened exactly .. if they said for example 3 years ago and it’s now controlled there is no problem to provide our treatment, but if the patient had a recent MI we don’t do any elective dental treatment unless 6 months has passed since the last MI , 3 months are okay to apply emergency dental procedures,in this case the patient should be admitted to the hospital , take the green light from his physician before proceeding because the patient will be under the risk of developing another myocardial infarction .

**MI**: basically there is an accident affecting one portion of the heart >> basically what is happening is that there will be a cessation of blood supply to a specific segment to the heart due to accident to the coronary artery that will lead to necrosis in that segment of the heart leading to dysrythmias(a medical condition causing irregular heart rate )

* So these patients will have irregular heart rate and heart beats , and they might need a pacemaker to regulate their heart activity .
* A lot of these patients are under anticoagulant medications ,usually at the early stages of their disease they give them strong anticoagulants such as warfarin ,then later at the late stages of the disease they are given aspirin or plavix .
* So it’s important to know what’s the patients medications and how to deal with such patients under these conditions ,so if he is a recent MI patient most probably he is on warfarin! But how to manage patients on warfarin ??
* Suppose that you want to extract a tooth for a patient on warfarin what should you check first is the patients INR (international normalized ratio ) if the INR value is 2.5 or less we can do our extraction (some say up to 3 is ok ) but DON’T YOU EVER STOP WARFARIN because this will be more dangerous to the patients health .
* Many of these patients carry with them a small note book having their INR values documented in it .
* Remember that it’s important also to take another INR value on morning of the day of the procedure ,because the INR value will be changed due to the effect of anticoagulants so it’s important to make sure that it’s still within the limits that permit us to proceed with our work (2.5 or less ) otherwise (if the value is higher than 2.5 ) referral to the patient’s physician is important asking him to decrease the value in order to start our procedure .
* Aspirin is an anti platelet drug that has also an effect on the blood .. so how to manage patients under this drug ??
* Logically the aspirin is a mild (weak ) anti platelet so manyof the references say that if the number of the teeth to be extracted less than 3 or you want to do a mild procedure(not surgical,or we don’t expect a difficult surgical procedure) there is no need to stop the drug because the effect of bleeding wont be that high .
* But if we want to do something more aggressive ( multiple implants ,multiple extarctions ), you need to stop aspirin at least before 11-12 days (which is the half life of the platelets ) in order to eliminate it’s effect on the platelets , so 11 days is enough to produce a normal non deficient platelets .
* So generally aspirin is more safer than warfarin and the patients on aspirin are low risk patients so stopping the drug wont be as dangerous as stopping warfarin .
* Warfarin acts on coagulation factors number 2,7,9,10(it has a strong effect on the formation of these factors ) ,so the dr said that if we accidently extract a tooth or we do any surgical treatment without taking the appropriate management or without knowing that the patient is on warfarin the amount of bleeding is unimaginable (زي (الحنفية and controlling the bleeding needs time also.
* anxiety reduction protocol should be used with MI patients so try not to surprise the patient with costs of the procedures you will perform :P
* Prophylactic GTN is important to be kept with these patients just in case to avoid any complications that might occur during the treatment that might threat his life .
* Checking the history of a patient under warfarin is mandatory because he might have other medical problems other than IHD such as prosthetic heart valve that led him also to take warfarin so here our management wont be checking the INR only but also giving the patient a prophylactic endocarditis antibiotic .
* It will be good if you have a life support kit in your clinic , and to take an ATLS course (advanced trauma life support ) and to have the appropriate skills to deal with the emergencies that might occur and to call for help when facing an emergency .

**HEART FAILURE:**

-another disorder that affects the heart .

-it might be right or left sided heart failure and both differ in their symptoms.

- diseased muscle of the heart can be deficient in function and thus can’t meet the required demand and the load >> hypertrophy of the heart will occur

- If it was right sided heart failure increasing in the blood pressure on the right side of the body will occur ,overloading of the liver ,ankle edema .

-On the left side different symptoms will be manifested.

-these patients usually when sleeping they put 3 pillows underneath their head because they have breathing difficulties.

-these also are at high risk of developing cardiac events and accidents during dental treatment or surgical stress .

-how they are generally treated ??

* by taking diuretics to get rid of the excess fluids in the body .
* -they also are giving and taking medications such as digoxin , beta blockers
* they have to be treated under Anxiety-reduction program.
* supine position can be annoying to these patients(they will have again difficulty in breathing ).
* -epinephrine (adrenaline)use is controversial … some say that giving LA injections with epinephrine might affect the heart and blood pressure(it increases the blood pressure and causes tachycardia ..etc) , others say that the LA wont be efficient with no adrenaline ,their for endogenous release of adrenaline and noreadrenaline will occur causing more effects on the heart than the adrenaline if given exogenously .

- so as a conclusion the patients with heart failure and cardiac problems will place the dr in doubt and he will be anxious whether to give the patient LA with epinephrine as a vaso constrictor that might cause further tachycardia and heart problems or whether to avoid this ? from the drs point of view he prefers to give LA with low vasoconstrictor concentration and to segment the work ???

**CORONORY ARTERY BYPASS GRAFTING :**

- CABG is one treatment for CHD. During CABG, a healthy artery or vein from the body( or example from the thigh) is connected, or grafted, to the blocked coronary artery. The grafted artery or vein bypasses (that is, goes around) the blocked portion of the coronary artery. This creates a new path for oxygen-rich blood to flow to the heart muscle.

-the medications these patient take : as almost every cardiac disease in the early stages they take warfarin then as they become more stable aspirin is given to them .

- Routine MOS can be safely performed with anxiety reduction protocols ,no need for giving prophylactic endocarditis antibiotics ( there is no risk it’s safe ) , and since the patient is under warfarin and aspirin we should be aware and stuck to the previous precautions was discussed earlier .

**CORONARY ANGIOPLASTY** :القسطرة

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>>They go into the coronary artery and then they decide whether to do simple ballooning (to widen the coronary artery so that by this the amount of blood passing to the myocardium will be higher ). But if the case is more complicated and more dangerous they might interfere surgically(open surgery ) by coronary artery bypass grafting .

-the difference in between the coronary artery bypass grafting and the coronary angioplasty is that the angioplasty is a cosmetic procedure in which we widen the artery and do slight modifications on it in order to decrease it’s blockage whereas in the bypass grafting we are adding a whole graft to the coronary artery. |(I didn’t get the dr idea though )

Extra informations From the web regarding the coronary angioplasty :also called percutaneous coronary intervention, is a procedure used to open clogged heart arteries. Angioplasty involves temporarily inserting and inflating a tiny balloon where your artery is clogged to help widen the artery.

Angioplasty is often combined with the permanent placement of a small wire mesh tube called a stent to help prop the artery open and decrease its chance of narrowing again. Some stents are coated with medication to help keep your artery open (drug-eluting stents), while others are not (bare-metal stents).

Angioplasty can improve symptoms of blocked arteries, such as chest pain and shortness of breath. Angioplasty can also be used during a heart attack to quickly open a blocked artery and reduce the amount of damage to your heart.

**Cardio vascular accidents** : if the patient has a history of cardio vascular accidents he is usually on anticoagulant medications and blood pressure lowering agents .

Anxiety reduction protocols

And it’s important to have oxygen masks and supply to provide oxygen when needed to save the patient’s life .

**What are the clinical symptoms of a patient undergoing CVA(cardio vascular accident )?**

* -neurological symptoms(confusion, effect on the facial nerve that might lead to facial paralysis , difficulty in the speech )
* -if these symptoms are manifested in the clinic this is an indication that the patient is having a stroke ,CVA,or injury affecting the brain.
* -these symptoms may persist ;that’s why patients with a history of stroke have a persistant neurological symptoms (facial palsy ,difficulty in speech, even the oral functions such as the salivation control might be compromised so he might have his saliva drooling if his facial nerve becomes weak .
* -so in these patients we take their history, including the medications they take, and we follow the same principles was discussed in the previous cardiac disorders.

Extra informations 1.  stroke may cause muscle weakness that affects the ability to close the mouth and swallow saliva leading to excessive drooling .

2.cardiovascular accident =cerebrovascular accident= stroke .

3.stroke happens when there is no adequate blood supply to the brain leading to cell death .

4. The main [risk factor](https://en.wikipedia.org/wiki/Risk_factor) for stroke is [high blood pressure](https://en.wikipedia.org/wiki/Hypertension).

**Dysrhythmias:**

* Having irregular activity of the heart .
* Usually these patients have pacemakers so we should be careful when using any device in the dental clinic that might affect the activity and the function of the pacemaker such as the electric cautery or any electric device that has an electromagnetic wave .
* When LA with epinephrine (adrenaline ) is given to normal people tachycardia(increasing in the heart rate) might be experienced so its wise to decrease the amount of epinephrine or adrenaline giving to these patients .

**Hypertension :**

* Is a persistent increase in the blood pressure.

So in order to differentiate in between the transient increasing in the blood pressure(for example during a stressful condition ,yelling ,lifting weights ,white coat syndrome ) and the persistent blood pressure elevation (hypertension ) we ask our patient to measure their blood pressure in the morning ,evening , ..etc.. for about one -two weeks if the measurements are elevated then the patient is having hypertension .

**What are the causes of hypertension :**

-Essential hypertension which is very common has no obvious cause might be due to genetic factors .

-Secondary hypertension might be due to systemic problems for example affecting the kidneys ,hyperthyroidism or any systemic problem that affect the blood pressure causing hypertension

-Generally uncontrolled hypertension will cause damage to vital organs such as kidneys, brain, heart

-its very important to having the blood pressure controlled to avoid any possible accidents during dental treatment .

-and we delay any elective surgery till controlling the blood pressure .

-no need to anxiety or stress .

-if it’s possible or wanted we can minimize the amount of LA with epinephrine to avoid further elevation in BP .

- so if a patient came with uncontrolled blood pressure we tell him that we can’t start with our treatment ,we need to stop ..ask him to control his blood pressure and to come again .

The dr asked about the management of number of cases :

1. For example if a patient with a history of prosthetic heart valve came to the clinic to do multiple dental implants what’s your planned protocol regarding this patient ?

* Doing multiple implants means that the open wound will be large and this patient is a high risk patient with a high INR (warfarin effect) so It’s safer to contact the patient’s physician 1st because he wants to do multiple implants ,he is a prothetic heart patient this is dangerous ,INR again is elevated due to the effect of anticoagulants , so it’s better to consult his physician because it’s a serious condition that can be done but we should be careful to rule out any possible threat to the patients life( the INR in these patient might not be decreased below 2.5 or 3 because this might increase the possibility of CVA so the target INR might be 2.5 or 3 in this case ) .help
* Prophylactic antibiotic should be given to the patient in the hospital(don’t give it in to avoid infective endocardititis , different schools with different protocols but these patients are considered high risk patients so strong antibiotics should be prescribed to them , (combined IV regimens of gentamycin(strongantibiotic) +amoxicillin )+ a post operative dose ,other schools give only amoxicillin, again it’s better and preferable to consult his physician about what’s best to be given to the patient to protect yourself and get the physician’s coverage just in case any complications happen .
* We should make sure more than 6 months has been since the patient has his prosthetic surgery in order to be able to do any elective dental procedure .
* So remember not to do any elective provcedure if the patient has a recent prosthetic valve surgery which is less than 6 months .

1. A patient came to the clinic with a 160|100 blood pressure measured in the clinic , he says that he has no history of hypertension , so we might suspect that this a transient elevation in the BP ,but after several readings the BP has remained the same so we suspect that he has hypertension , he should be referred to the diagnosis department , then in order to start any procedure his blood pressure should be 1st controlled to avoid any uncontrolled blood pressure complications that might lead to Cardiovascular accidents (CVA) such as strokes ,comas, excessive bleeding.

Here in Jordan the incidence of hypertension is elevated so we shouldn’t avoid treating such patients if their blood pressure is controlled and you carefully apply your procedure.

So remember that it is something mandatory in patients with hypertension not to do any elective procedure unless their blood pressure is controlled ,imagine applying our stressful dental procedure including local anesthetic application ,fear ..etc to such high pressure patients which might lead to excessive bleeding,stroke,coma; threatening their life .

A student asked about prophylactic antibiotics in general ,and when we should use them ?

-there is certain medical diseases require giving antibiotics to avoid it such as the infective endocarditis , and there is a specific different regimens giving to certain patients under risk of developing such disease ,these regimens are given one hour preoperative their type is dependant on many things for example the patients allergy to certain antibiotics .. these are definite indications for giving prophylactic antibiotics .

-second type is the surgical prophylaxis ;for example when we want to do a surgery to a patient we give him antibiotic before the surgery ,this is something debatable specially in our area ; the mouth is generally a dirty environment full of microbes some people say it’s more important to provide an aseptic techniques rather than giving antibiotics , others say that you need to give antibiotics before the procedure ..so generally speaking and to make it more easier for us to decide whether to give prophylactic antibiotics or not: if a very simple dental procedure to be performed such as the simple extraction that we do non surgically it would be wise not to give antibiotics to minimize the bad effect of the unnecessary antibiotic abuse (for example the amoxicillin lost its effectiveness due to its bad abuse )so we tend scientifically to avoid the overuse of antibiotics and we don’t give it in simple dental procedures , but in cases of surgical and other difficult extractions such as an impacted wisdom tooth again some people are with and others are against giving prophylactic antibiotics .. if we decided to give antibiotics we give it in small doses lets say one dose preoperatively which is important because if bleeding occurs during a surgery might lead to hematoma formation ,hematoma and the site of surgical incision lacks blood circulation and thus their will be a high infection possibility so it’s important to have a good level of antibiotics before the surgery, a common mistake many drs do is to give them a course of antibiotic for a long duration lets say seven days after the surgical extraction whereas in this previous case it’s wiser to give a prophylactic small dose preoperatively as we said because bleeding might occur leading to hematoma formation >> hematoma and the surgical area they lacks blood circulation thus there is a high possibility of developing infections ,so it’s wiser to give preoperative antibiotic than extract his tooth and give him a therapeutic dose of antibiotics.

-- so if we decided to give prophylactic antibiotic we give it before the procedure same as the prophylactic principle in infective endocarditis (in which we give a preoperative dose ) and after the procedure there is no need to give an antibiotic or we can give it but for a short time again same as infective endocarditis (we don’t always need to give post operative dose but if we decided to give after the procedure we give 2-3 doses only but still there is no clear protocol whether to give post operatively or not)

So as a conclusion prophylactic antibiotics are given preoperatively (one hour before the procedure usually ) and a postoperative dose of antibiotic it’s optional and still there is no obvious protocols regulates whether it’s necassry to give it or not( ya3ni you can give it or not ..usually its not important to give it ) but if decided to do so ,small doses for a short period should be given .

A common mistake almost all drs do is to give the patients postoperatively an antibiotic for a long periods for ex. A week , (this is called a therapeutic antibiotic in which a full course should be given to patients with an established infection).

* In major surgeries we provide our aseptic techniques and again we give a dose preoperatively and 2-3 doses post.

GOOD LUCK EVERYONE AND SORRY FOR BEING LATE

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Sorry for any mistakes