**MIDTERM EXAM ASSIGNMENT:**

**ID: 13847**

**PAPER: COMPUTED RADIOGRPHY PROCEDURE**

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**QUESTIONS/ANSWERS**

**Q1:When performing a CT study of the brain ,what effect will moving the patients chin up or down ?**

**Ans:CT STUDY OF THE BRAIN:**

When perfoming the ct study of the brain .The slice angle is find out by the position of the gantry.

* If the patient chin up or down during the procedure it will prouce the motion artifacts in the image.
* Sometime due to this the noise will be create in the image
* Moving the chin up and down it was once common to programme the cross sectional slicesof the brain parllel to the orbitomeateal line.
* Recent practice favors programming slices of the brain parallel to superorbital meatal line rather than the orbital meatal line
* To reduce radaiation exposure to the lens of the eye
* Therefore axial(step and shoot) techniques are used for routine brain imagaing.

**Q2:Describe the appearance of intercranial hemmorhage on the ct image ?**

**Ans:INTERCRANIAL HEMMORHAGE:**

CT is the most frequently used for imaging of intercranial hemmorhage.fortunatley Acute blood is markedly hyperdense to the brain paranchyma.

**APPEARANCE:**

* The appearance of intercrainal hemmorhage will change with the passage of time because the red blood cell in the hemmorhage dteriorate.
* These changes are complex and depends on many factor.
* As a general rule intercranial hemmorhage will appear hyperdence to normal brain tissue for approxiamately 3 days.
* After which it will decrease gradullay in density.
* This progressively density loss continues until the entire hamatomafinally become hyperdense to brain tissue.
* Intercranial hemmohrage generally will appear hypodense from onset of 3 days.
* From 4 to 10 days it is likely to contain a hyperdense centre surrounding by concentrating ares of hypodense and hyperdense tissue.
* From 11 day to 6 month it is isodense centre surrounding by ares of hypodense tissue.
* By 6 month the ICH will be hypodense to brain.

**Q3:Describe how patient can be positioned so that data can be acquired of the head in the coronal plane ?**

**Ans :POSITION OF HEAD IN THE CORONAL PLANE:**

There are two methods of achieving coronal position of the head.

* One is to place the patient prone on the scanning table.
* And ask the patient to extend the chin forward.
* An alternative approch is to place the patient supine and ask to drop the head back as far as possible.
* This position required a special head holder.
* If the patient cannot extent neck fully, thr gantry will be angled to obtain a more coronal plane.
* The image obtained in either the prone or supine coronal position is essentially the same .

**Q4:Describe three general phases of tissue enhancment ?**

**Ans:THREE GENERAL PHASES OF TISSUE ENHANCMENT:**

The three general phases of tissue enhancement are commonly disscused in CT:

1. The bolus phase(arterial)
2. The non equilibrium phase(venous)
3. The equilibrium phase (delayed)

1.**the bolus phase:**

* The bolus phase is that phase in which immediately follows iv bolous injecton.
* This phase is commonly called arterial phase.
* In this phase the arterial structure is filled with the contrast medium so they will brightly display on the image .
* It is characterized by an attenuation difference of 30 or mose Hounsfeild Units betwee the aorta and the inferior venacava.

**2.non equilibrium phase :**

* It follows the bolus phase and is characterized by attenuation a differnce of 10-30 HU AVID.
* The contasat is much brighter in the arteriers than in the paranchyma of the organ. But now the venous structure are also opacified.
* It is also called venous phase.
* This phase begins approxiamtely one minute after bolus injection.
* Most routine body imges are acqired while contrast is in the non equilibrium phase.

**3.equilibrium phase:**

* The last stage of tissue enhancment following the iv injection, and it is also called delayed phase.
* It can begins as early as 2 mints after the bolus injection.
* It is charcerized by an attenution difeerence between aorta and inferior venacava of less than 10 HU.
* The equilibrium phase is the worst phase for acquring scan of the body.
* In this phase the tumor will become isodense(the same density as the surrounding tissue) cen be indistinguishble.

**Q5:What are the symptoms of idiosyncratic reaction to contrast media?what are the symptoms of chemotoxic reaction?into which catergoray do delayed reaction belonged?**

**Ans:IDIOSYNCRATIC REACTION:**

Idiosycratic reaction typically begin within 20 minutes of the injection . This reaction can occure after an injection of less than 1 mL of ICM.

The symptoms of idiosyncratic reaction are:

* Rigors
* Utricaria
* Bronchospasam
* Hypotension
* Abdominal pain
* Necrotizing skin lesions
* Perionel burning
* Flushing, metallic taste in mouth,neusea,sneezing,caugh and tengling are common and relaed to dose and speed of injection
* Delayed onset reaction –rashes,headaches,itching etc

**CHEMOTOXIC REACTION:**

* Pain at the ijnection side beacause of combination of hypertonicity and calcium binding can result in vesodialtion.
* It depends upon the dose and infusion rate such as arrhythmais,seizure,neusea,renal toxcity etc
* Type IV hypersensitity reaction is also called delayed reaction.
* Those reaction showed between 1hr and 7 days after the intake of injection

**Q6:list the qualities of IV access site that would make it ideal for administering contrast media?**

**Ans:Qualities of IV access sites:**

* Inravenous contrast administration is legal neccessity and should include the name of the agent the dose the flow rate and the injection side.
* It is easily accessible
* Blood reach everywhere or to the site easily.
* Due to contrast excreation will be easy through the kidney.
* We choose the IV line which have the petency to hold the pressure of contrast.
* The access site will be near to the brain.
* The access site will not be really deep into the skin ,if we select the deep iv line it will harm the patient.
* In foot:Dorsal arch vein are small but easily cannulaed.the vein on the lateral side aspects running bellow to malleolus is easy to acess.
* Head:dorsal arch vein best seen on the back of hand but easily seen and easily palpate.
* Leg:saphenous vein access easily and lost well if properly splinted.
* Dua to all these qualitiesit is ideal to use IV access for contrast administration.