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DEGREE: BS-RADIOLOGY (4TH SEM)

VIVA PAPER: CR & DR

DATE: 10TH JULY 2020

Q1:

Digital Subtraction Angiography:

- It is a fluoroscopic technique used for visualizing blood vessels.

Equipment:

- The fluoroscopic unit consist of a C-arm that can be rotated axially and sagittally around the floating top table.
- The distance between the x-ray tube and the imaging intensifier can be adjusted as can collimation and other parameters.

Features:

- Collimators.
- Pulsed fluoroscopy.
- Last image hold.
- Display of image side by side.
- Masks.
- Image enhancement.
- Different image manipulations.
- Cine.
- Complications:

Local:

- From the puncture site.
- Thrombus formation
- Local tissue damage
- Arteriovenous fistula.

Systemic:

- Thromboembolism.
- Air embolism
- Vessel dissection.

Q2:

Disadvantages of DR:

- Cost: high set up cost on features.
- No longer supported.
- Artifacts: unique to CR or DR can be introduced in the digital image acquisition or retrieval process.
- Special resolution of DR image recording system is lower than that of Film screen image recording.
- Dose-Creep: since exposure latitude is wide, high exposure technique may be used which increase the patient dose.

Q3:

Comparison of image quality of DR and Screen Film Radiography:

- Image quality: Screen film is best from DR.
- Initial cost: Screen film is lowest than DR.
- Operating Cost: DR is lowest, Film is highest.
- Sensitivity: DR is better than Screen Film.
- Operating Convenience: DR is best.
- So the image quality of DR is superior.

Q4:

Common Artifacts in DR:

- There are three common types:

Preprocessing artifacts: before image is prepared for processing several manipulation of the output of image receptor may be necessary to correct for patient artifacts.

Image receptor artifacts: if a CP IP has been used for 24 hours, it should be erased again before used.

Software artifacts: the Digital radiograph is a raw data sets. As such these images are ready for processing.

- How to Avoid:
- Most radiographic artifacts can be prevented by a proper storage and handling of films.

Q5:

IMAGE RECEPTER OF CONVENTIONAL IMAGING SYSTEM.

- There are three key part of image receptor for conventional radiography.
- Film to record image.
- Intensifying screen to expose the film.
- Cassette to protect the screen and film.
- More conventional radiographic cassette have pair of screen that sandwich the film. This design use double emulsion film.
- A part of cassette use in the conventional x-ray film radiography contain florescent phosphor is active material.
- Different type of intensifying screen emit different intensities and color of light when irritated by x ray.
- Radiographic intensifying screen resemble flexible sheet of plastic or cardboard.
- Intensifying screen in size that compare to film size.

Digital radiography

- With digital radiography no cassettes are used. The x-rays hit a permanently placed set of hardware, which then sends the digital information directly to a readout mechanism.

Standard DR Process

- X-ray produced by standard radiographic x-ray tube
- Image captured by digital image detector
- Digitized into a stream of data via an analogue-to-digital converter (ADC)
- Transfer to a system computer
- Output via digital-to-analogue converter (DAC) to video format
- Post-processing of image
- Display on to suitable display device.