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Program: BS Radiology

Semester Fourth

Report Clinical Medicine

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Nuclear Medicine:-

It is the medical specialty involving the application of radio active substance in the diagnosis & treatment of disease.

Nuclear medicine means imaging inside or endoradiology b/c it records radiation from within the body rather than radiation

It is different from radiology b/c it help to identify the junction of organs rather than anatomy therefore it is called physiological imaging modality.

Diagnosis of thyroid disease via nuclear medicine:-

iodine 123 whole body scan for thyroid disease, iodine 123 is injected via vein
⇒ Thyroid scan with iodine - 123 for evaluation of hyperthyroidism, thyroid cancer. iodine 123 whole body scan for thyroid cancer evaluation. It is also performed after ~~TSH~~ withdrawal of medication, TSH stimulation & total thyroidectomy to see residual thyroid tissue in the neck.

(3)

Treatment of thyroid disease via Nuclear Medicine:

The ^{131}I -sodium iodide is injected through intravenously, so the ionizing ^{131}I -sodium iodide emit ionizing radiations to destruct pathological tissue but keep in mind ionizing ion inject into vein very close to pathology b/c if away it will destruct normal tissue as well.

Uses:

- ① to help to treat thyroid cancer
- ② hyperthyroidism

It may be given as orally either in pills form or liquid form which destroy the hyperfunction of thyroid glands

Q3. 2:

Ans:- Polycystic Kidney disease

It is also known as polycystic kidney syndrome, it is genetic disorder in which renal tubules become structurally abnormal resulting in the development of growth of multiple cyst within the kidney.

Types:-

- ① Autosomal dominant polycystic kidney disease
- ② Autosomal recessive polycystic kidney disease.

PATHOLOGY:-

As we discussed already above that it is genetic disorder in which genetic mutation anyone of three genes mention below

- ① PKD1 ② PKD2 ③ PKD3

Gene PKD1 - It is located on chromosomes 16 & codes for a protein involved in regulation of cell cycle, & involved intracellular calcium channel transport in epithelial cells.

(5)

Mechanism:-

Both autosomal dominant & Autosomal recessive polycystic kidney disease tied to abnormal cilia mediated signaling.

The polycystin 1 & polycystin 2 protein appear to be involved in both Autosomal & recessive disorders due to defect in both proteins.

Both proteins having communication calcium channel protein & causes in reduction in resting "intracellular" calcium & endoplasmic reticulum storage of calcium.

Signs & Symptoms:-

- ① High blood pressure
- ② Headach
- ③ Abdominal pain
- ④ Blood in urine
- ⑤ Excessive urination

Diagnosis:-

Physical examination:-

- ① Enlarged liver on palpation
- ② Heart murmur on auscultation
- ③ Elevated blood pressure

Radiological:-

- ① Abdominal ultrasound, CT, & MRI

(6)

Treatment:-

- ① Dietary Restriction
 - ② To treat infection
 - ③ Dialysis
 - ④ Kidney transplant
-

Q8-3

Ans:-

LITHOTRIPSY:- It is the medical

procedure involving the physical destruction of hardened masses like "Kidney stone" or "Gall stones"

* Diagnostic or therapeutic?

① It is both through which we can diagnose the size of hard masses like stone.

* It is also used to destruct the stone into pieces so it is also therapeutic.

* Criteria:-

There is some criteria to do lithotripsy if size of stone less than 8mm it will not use.

if greater than $\bullet > 8\text{mm}$ go for lithotripsy.

Types:-

(1)

There are some types:-

- ① Intra corporeal (endoscopic lithotripsy)
- ② Extracorporeal shock wave therapy
- ③ Laser lithotripsy \Rightarrow It is effective for large stones ($> 2\text{cm}$) with good stone free & complication rates
- ④ Electro hydraulic lithotripsy
- ⑤ Mechanical lithotripsy
- ⑥ Ultrasonic lithotripsy It is safer for small stone $< 10\text{mm}$.

Suffix "OTOMY:-

It is Greek words which means "cutting" sharp" or "separate"

There are some suffix "otomy" used in medical dictionary.

- ① Amniotomy: - Incision given to accelerated labour.
- ② Bilateral Cingulotomy: - Treatment for depression & addiction
- ③ Bronchotomy: - It is the procedure to open airway b/w the lungs, & the outside the

④ Clitoridotomy: - plastic surgery that reduce clitoris hood.

⑤ Coeliotomy: A large incision given through abdominal wall to gain access into abdominal cavity.

⑥ Coloptomy: Extraction of fluid from the pouch of Douglas through the needle.

⑦ Cordotomy: - The procedure that disables selected pain conducting tract in spinal cord, in order to achieve loss of pain & temperature perception.

⑧ Craniotomy: - A bone flap temporarily removed from skull to access the brain.

⑨ Cricothyrotomy: - An incision made through a skin and cricothyroid membrane to establish a patent airway during certain life threatening situation.

⑩ Escharotomy: - It is used to treat full thickness burns.

⑪ Episcotomy: - Surgical incision of the perineum by posterior vaginal wall.

⑫ Fasciotomy: - Surgical procedure where the fascia is cut to relieve the tension or pressure.

(9)

- (13) Haller myotomy - Muscles of cardia are cut allowing food & liquid to pass to the stomach.
- (14) Hymenotomy - Surgical removal or opening of hymen.
- (15) Hysterotomy :- Incision in the uterus & is performed during a C/section.
- (16) Laprotomy - Large incision through abdominal to gain access into abdominal cavity.
- (17) Lithotomy - It is common position for surgical procedure & medical examination involving the penis & lower abdomen.
- (18) Lobotomy - Cutting away most of the connection to & from the prefrontal cortex, the anterior part of frontal lobes of the brain.
- (19) Myotomy - It is procedure in which muscles are cut.
- (20) Phlebotomy - An incision in a vein with the needle.

Q-5

Urinary tract infection:-

It is an infection which affects the part of urinary tract, when it affect the lower urinary tract it is known as "bladder infection" or "cystitis" & when it effect the upper urinary tract it is known as "kidney infection" "pyelonephritis"

Causes:-

It may be due to bacteria & less commonly fungi in which E. coli is the most common cause.

Risk factors:-

- ① Female Anatomy
- ② Sexual intercourse
- ③ Diabetes
- ④ Obesity
- ⑤ Family history
- ⑥ Stones

Lower urinary tract infection:-

Cystitis:-

Infection of urinary bladder in which patient presents with:-

- Dysuria, • suprapubic pain/discomfort • mild or absent

(11)

Pyelonephritis:-

Infection of upper urinary tract infections in which patient present with:

- Flank or costovertebral angle tenderness
- High fever
- Sometime abdominal pain from inflamed kidney

Diagnosis:-

- Urine analysis
- Urine culture
- Imaging studies: "CT or Sonogram"

Treatment:-

- Take more water
- Given sodium acid citrate
- Given smooth muscle relaxant for pain or given pain killer
- Given Antibiotics,
 - ⊛ Ciprofloxacin is a drug of choice but we may give to patient
 - ⊛ Nitrofurantion or Fosfomycin
 - ⊛ Trimethoprim/sulfamethoxazole
 - ⊛ Cefixime ⊛ Ceftriaxone etc