

Name : Gulalai Zahid

ID# : 15175

Viva : Clinical Medicine

Submitted : Mam. Maheen Gul.
to

①

Question : 1

Nuclear medicine :

→ It is the
branche of medicine in
which patients are given
radioactive substances either
to diagnose or to treat a
disease.

→ Nuclear medicine is directly
involved in both diagnosis
and treatment of thyroid
diseases, which requires a
understanding of the patho-
physiology and mangment
of thyroid disorders in
addition to expertise in
nuclear methodology.

Role OF Nuclear Med- cine IN Diagnosis AND Treatment OF

THYROID Disease:

Thyroid uptaking and imaging
the principal nuclear tests
in disease may used
as follow;

DIAGNOSIS:

- 1- Nuclear medicine involves using small amounts of radioactive material to diagnose disease.
- 2- Nuclear medicine plays a major role in diagnosis of thyroid pathologies.
- 3- Thyroid scan usually conducted with TcO_4-99m yield functional information valuable in differential diagnosis of thyroid nodules.
- 4- Radioactive iodine is typically used in thyroid scans and tests.

- 5- Thyroid scan be used to evaluate abnormalities found in physical exam or tests.
- 6- Gamma Camera or scanners detects the radioactive emissions.
- 7- Most type of thyroid cancers absorb iodine naturally.
- 8- Test used to diagnosis the following;
- 9-
 - ⇒ Hyperthyroidism.
 - ⇒ Hypothyroidism
 - ⇒ Swelling
 - ⇒ Inflammation
 - ⇒ Lumps
 - ⇒ Nodules
 - ⇒ Other Growths.

Treatment:

→ Radioactive Iodine I-131 therapy is a treatment for an

overcome thyroid condition called hyperthyroidism.

→ Treatment of benign hyperthyroidism has shown that functional imaging is essential linked to therapy and uptake of iodine -131.

→ In iodine therapy, radioactive iodine is swallowed, absorb into bloodstream in GIT and absorbed from blood to thyroid gland where it kill cells of glands' cells.

→ Doctor will instruct patient how to take necessary radiation safety precautions and when and how to stop taking any anti-thyroid medication.

→ Eating and drinking should prohibited from midnight on the day of treatment.

→ RAI treatment leads to long standing reduction of thyroid function.

Question : 2

5

Day: MTWTFSS

Polycystic Kidney disease: Introduction:

- “ PKD or PCKD also known as is a genetic disorder in which the renal tubules become structurally abnormal, resulting in development and growth of multiple cysts within kidney. ”
- PKD is caused by abnormal genes that produce specific abnormal protein.
 - PKD may impair kidney function and eventually cause kidney failure.

Types of PKD:

(i) Autosomal Dominant PKD:

- It is transfer to child from parents by dominant inheritance.
- Only one copy of abnormal gene is needed to cause disease.

→ ADPKD is sometimes called adult PKD.

→ Someone who has a parent with PKD has 50% chances of developing condition.

(ii) Autosomal recessive PKD:

→ Autosomal recessive is much less common than dominant PKD.

→ It is also inherited but both parents must carry the gene of disease.

Types of Autosomal recessive:

- Perinatal form: is present at birth
- Neonatal form: occurs within first month of life.
- Infantile form: occurs in child when he was 3 to 12 months old.
- Juvenile form: occurs after the child is 1 year old.

(iii) Acquired cystic disease:

- It is often associated with kidney failure and dialysis.
- It is not inherited.
- It occurs later in life.
- It develops in people who already have kidney problems.

Diagnosis of PKD:

* Abdominal Ultrasound:

This non-invasive test uses sound waves to look at your kidney for cysts.

* CT Scan:

It detects smaller cysts in kidney.

* MRI:

It is used to measure and monitor the volume and growth of kidney and cysts.

* Gene Linkage analysis:

It is a special blood test for diagnosis of at-risk individuals.

Symptoms of PKD:

- pain
- Blood in urine
- frequent urination
- pain in sides
- UTI
- Kidney stones
- heaviness in back
- fatigue
- pale skin color
- Joint pain
- nail abnormalities
- High BP.

In US about 600,000 people have PKD.

Treatment for PKD:

- No cure for PKD at start.
- Control of BP.
- Exercise → weight control
- Reduced salt intake → Smoking limited
- Medication to control pain.
- Antibiotics of bladder and kidney.
- Surgery to drain cysts.

Complications of PKD:

- cysts on and liver, pancreas, testicles.
- diverticulae = pouches in wall of colon.

⑨

- cataracts or Blindness
- mitral valve Prolapse.
- anemia → liver failure
- heart disease → kidney stone
- high BP → bursting of cyst.

Average life expectations of patient with ADPKD ranges from 53 to 70.

Question : 3

Lithiotripsy :-

Introduction:

- It is non-invasive surgical procedure used to treat kidney stones.
- It is a medical procedure involving the physical destruction of hardened masses like kidney stones, bezoars or gallstones.
- Lithiotripsy using the example of 100MPa shock wave at velocity peak is about 67m/s.

Types of Lithiotherapy:

There are several types of lithiotherapy:

- Extracorporeal shock wave litho
- Shock wave lithotripsy.
- Laser lithotripsy.
- percutaneous lithotripsy.
- Endoscopic lithotripsy.

→ During ⁱⁿ lithotripsy, high energy shocks wave will pass through body until they reaches the kidney stones. The waves will break stones in small pieces that can easily be passed through urinary system.

Lithotripsy is a therapeutic tool:

Lithotripsy was developed and replaced in the treatment of beginning in year 1980.

(11)

Lithiotripsy is used to treat small kidney stones that are not treated by surgery or for that there is no need of surgery when they are easily treated and excreted from body by shock wave procedure called lithiotripsy.

Lithiotripsy divides/destroys large stones into small pieces and easily excrete from body through urinary system. It will not harm skin, bones or muscle it only targeted over stones and treat it.

General Criteria for performing lithotripsy:

During Procedure:

- It is completely non-invasive therapy most lithotripsy treatments are performed on an outpatient basis.
- The use of anesthesia depends on patient and physician preference.
- X-ray machine used to pinpoint the location of the stone within the kidney.
- Our goal when performing lithotripsy is to maximize breakage of stones and minimize injury that shock waves can cause kidney and other organs.

Generally, lithotripsy follows this process;

- 1- Asked to remove any clothing, jewelry etc which may

interfere with the procedure,
and given gown to wear.

2- An IV line will be
inserted in patient arm.

3- Patient will receive a
sedative or anesthesia to
ensure that patient remains
still pain-free during the
procedure.

4- If patient awake during
procedure then they
may experience a light
tapping feeling on skin.

5- During procedure, surgeon
will use a machine called
Lithotripter to aim sound
waves directly at body
and focus until it
reaches to kidney and
target the stones and
break stones into small
pieces which now easily
excrete from urinary system.

6- This procedure should take about 45 to 1 hr. Tube called stent may be placed through your back or bladder into your kidney. This tube will drain urine from your kidney until small pieces of stones pass out of body, the procedure will End.

After the Procedure:

- 1- After procedure patient take to recovery room for observation.
- 2- Once blood pressure, pulse, and breathing are stable and patient comes in senses they can go to home. Encouraged patient to drink more fluids.

Date: _____

Day: M T W T F S

15

3- There will be blood in urine for few days. May notice bruising on back.

4- Take pain reliever for soreness.

5- Antibiotic should given after procedure.

6- ⇒ Notify your doctor to report.

⇒ Fever / chills

⇒ Burning with urine

⇒ Urgency

⇒ Extrem lower backache.

Question: 4

Terms with suffix "otomy"
"Otomy" is derived from Greek word means "cutting", "separate" or "sharp" incision.

- 1- Amniotomy: An incision created to accelerate labor.
- 2- Androtomy: Dissection of human body.
- 3- Bronchotomy: Procedure to ensure an open airway b/w lungs and outside body.
- 4- Coelectomy: A large incision through abdominal wall.
- 5- Clitoridotomy: plastic surgery of clitoral hood.
- 6- cordotomy: procedure that disables selected pain.

conducting tracts in spinal cord.

- 7- Colpotomy:- Extraction of fluid from pouch of Douglas through needle.
- 8- Craniotomy:- A bone flap is removed temporarily from skull to access brain.
- 9- Cricothyrotomy:- Incision made through skin and cricothyroid membrane.
- 10- Escharotomy:- Procedure used to treat full thickness circumferential burns.
- 11- Episiotomy:- Surgical incision of the perineum and posterior vaginal wall.
- 12- Fasciotomy:- Surgical procedure to cut fascia to relieve tension and pressure.

Date: _____

Day: MTWTFSS

18

13- Helle myotomy :- Muscles of cardia are cut allow food to pass to stomach.

14- Hymenotomy :- Surgical removal or opening of hymen.

15- Laminotomy :- Partial removal of lamina.

16- Laparotomy :- Large incision through abdominal wall to access abdominal cavity.

17- Lithotomy position → Medical term refers to a common position for surgical procedures and medical examination of pelvis.

18- Lobotomy :- Cutting or scraping away connections to and from prefrontal cortex.

18- ~~Meatotomy~~ :- Fo

19- Myotomy :- Procedure to cut muscle.

20- Osteotomy :- A bone is cut to shorten or to change its alignment.

21- Phlebotomy :- Incision in vein with needle.

22- Pulpotomy :- Removal portion of pulp.

23- Radial Keratotomy :- is a refractive surgical procedure to correct myopia.

24- Sphincterotomy :- Treating mucosal fissures from anal canal.

25- Thoracotomy :- Incision to pleural space of chest.

Date: _____

Day: **MTWTFSS**

20

26- Thyrotomy :- Incision of the larynx through the thyroid cartilage.

27- Tracheotomy :- An incision on the anterior aspect of the neck and opening a direct airway through an incision in trachea.

28- Arthroscopy :- is a surgical exploration of joint.

29- Ovariotomy :- is a surgical incision of ovary.

Question: 5

21

Day: MTWTFSS

Urinary tract Infection:-

Introduction:

- UTI is an microbial infection in anywhere in urinary system/tract includes kidney, ureters, urethra and bladder.
- It caused by bacteria that get access in urinary system through skin, rectum or urethra etc.
- 8.1 million people visit doctor per year

UTI Symptoms:

- > Bloody urine
- > cloudy urine
- > pelvic pain
- > rectal pain
- > urine bad odour
- > urine look like cola or tea.
- > Burning with urination.
- > increase urgency of urine

Date: _____

Day: **MTWTFSS**

22

Symptoms of UTI of a upper tract.

- o) chills
- o) fever
- o) nausea
- o) vomiting
- o)

Diagnosis :-

(i) Analyzing Urine sample:

With help of urine sample bacteria, RBCs, WBCs are clearly see.

(ii) Growing urinary tract bacteria in a Lab:

Lab analysis of urine is sometimes followed by a urine culture. This test will tell doctor that what bacteria are causing infections.

(iii) Creating imaging of UT:

If patient has frequent urine and doctor think about abnormality in UT then ultrasound, CT and MRI can done.

Using scope to see inside:
If patient has recurrent UTI then doctor performs cystoscopy using long tube with lens to see inside urethra and bladder.

Types of UTI:-

- ☞ Urethritis ⇒ infection of urethra
- ☞ Cystitis ⇒ infection of bladder
- ☞ Vaginitis ⇒ infection of vagina.
- ☞ Pyelonephritis ⇒ infection of kidney.

causes of UTI:-

- access of bacteria to UT.
- Women has greater risk of UTI because of smaller urethra and bacteria easily access to bladder.
- Diabetic patient has greater risk

Antibiotics for UTI:-

→ Medications may kill bacteria, such as;

- * Amoxicillin
- * Ceftriaxone
- * Cephalexin
- * Fosfomycin
- * Levofloxacin etc.

UTI treatment:

* Treatment of UTI depends on cause and subtype.

* UTI caused by bacteria treated with antibiotics.

* Viral UTIs treated with antivirus.

* Fungal UTI treated with medication called antifungals.

* Taking more vitamin C.

Untreated UTI:-

* It's important to treat UTI as early as better if leave it without treatment it will cause kidney permanent damage and also cause sepsis.

UTI prevention:

- Drink more water.
- Don't hold urine long.
- Take cranberry supplements
- vaginal antibiotic must be use.
- Good hygiene.

UTI during Pregnancy:-

- UTIs during Pregnancy cause high Bp and premature delivery.

16% male and
60% females suffers
UTIs.)