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Assignment given By :

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Question No. 1

ROLE OF NUCLEAR MEDICINE IN DIAGNOSIS AND TREATMENT OF THYROID DISEASE.

Nuclear medicine play a major role in both treatment and diagnosis of thyroid disease. which requires an understanding of pathologies and management of thyroid disorders in addition to expertise in nuclear methodology.

Thyroid uptake and imaging the principle of nuclear test is thyroid disease, may be used as follows.

DIAGNOSIS:-

Nuclear medicine involves in small amount of radioactive materials to diagnose disease.

- The radioactive iodine builds up in your thyroid tissue.
- The thyroid and most types of thyroid cancer



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absorb iodine naturally.

- A thyroid scan can be used to evaluate abnormalities found in physical exam or laboratory test.
- A gamma camera and radioactive scanner detect the radioactive emission.
- The images from this test can be used to diagnose.

- * lumps nodules or other growths.
- * Hyperthyroidism
- * Hypothyroidism.
- * Inflammation or swelling.

ROLE OF NUCLEAR IN TREATMENT OF THYROID DISEASE:

- Radioactive therapy is a nuclear medicine treatment for an overactive thyroid, a condition called hyperthyroidism also may be used for thyroid cancer.

- You should not eat or drink anything after midnight on the day of treatment.
- Your doctor will instruct you on how to prepare



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how to take any necessary radiation safety precautions and when to stop taking antithyroid medications

- When a small dose of radioactive iodine $I-131$ an isotope of iodine that emits radiation is swallowed, it is absorbed into the blood stream and concentrated by thyroid gland, where it begins destroying the gland's cells.
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Question No. 2

POLYCYSTIC KIDNEYS:-

Polycystic kidney disease is an inherited kidney disorder.

It causes fluid-filled cysts to form in the kidneys.

PKD may impair kidney function and eventually cause kidney failure.

People with PKD may also develop cysts in the liver and other complications.

PKD causes cysts to grow inside the kidneys. These cysts make the kidneys much larger than they should be and damage the tissue that the kidneys are made of.

TYPES OF PKD:-

AUTOSOMAL DOMINANT PKD (ADPKD)

Autosomal dominant PKD causes cysts only in kidneys. it is often called "adult PKD" because people with this type of PKD might not notice



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any symptoms until they are between 30 and 50 years old.

AUTOSOMAL RECESSIVE PKD:-

Autosomal recessive PKD causes cysts to grow in both the kidneys and liver. Autosomal recessive PKD is often called infantile PKD because babies can show signs of the disease in their first three months of life, or even before they are born.

ACQUIRED CYSTIC KIDNEY DISEASE:-

Acquired cystic kidney disease is not inherited. It usually occurs later in life.

ACKD usually develops in those people who have already kidney problems. It's more common in people who have kidney failure or are on dialysis.

CAUSES OF PKD:-

PKD is almost always inherited from a parent.

PKD causes chronic kidney



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disease which can lead to kidney failure or end stage renal disease.

PKD is associated with the following conditions:- Aortic aneurysms, Brain aneurysms, Diverticula of the Colon.

If you have a blood relative with PKD, you are more likely to have PKD or carry the gene that causes it. If you carry the gene that causes PKD but you do not have the disease, you are called a carrier. This is possible with autosomal recessive PKD.

SYMPTOMS:-

Many people live with PKD for years without experiencing symptoms associated with the disease. Initial symptoms associated with PKD can include:

- Pain or tenderness in the abdomen
- Blood in urine
- Frequent urination
- Pain in the sides
- Urinary tract infection.
- Kidney stones etc.



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DIAGNOSIS:-

Imaging tests used to diagnose PKD include.

ULTRASOUND :-

This noninvasive test uses sound waves to look at your kidneys for cysts.

CT SCAN:-

This test can detect smaller cysts in the kidneys.

MRI SCAN:-

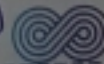
MRI uses strong magnets to image your body to visualise kidney structure and look for cysts.

INTRAVENOUS PYELOGRAM:-

This test uses a dye to make your blood vessels show up more clearly on an X-rays.

COMPLICATIONS OF PKD:-

Complications may include



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weakened areas in the walls of arteries known as aortic or brain aneurysms.

- Cysts on and in the liver.
- Cysts in the pancreas and testicles.
- liver disease.
- bleeding or bursting of cysts.
- high blood pressure.
- kidney stones etc.

TREATMENT:-

There is no cure for PKD. Many supportive treatments can be done to help prevent or slow down the loss of kidney function. These include.

- Careful control of blood pressure.
- prompt treatment with antibiotics if a bladder or kidney infection.
- medication to control pain.
- loss of fluid when blood in the urine is first noted.
- A healthy life style with regard to Exercise, weight control and reduce salt intake.



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Question No. 3

LITHOTRIPSY:-

Lithotripsy is a Greek word litho means "stones" trip means "break"

Lithotripsy is a medical procedure used to treat certain types of kidney stones and stones in other organs, such as gallbladder or urine.

Lithotripsy uses sound waves to breakup large kidney stones into smaller pieces. These sound waves are also called high energy shock waves.

THERAPEUTIC:-

Lithotripsy is therapeutic because it is used for treatment. Sometimes our body can't pass larger formations through urination. This can lead to kidney damage. People with kidney stones may experience bleeding, severe pains or urinary tract infections. When stones begin to cause these types of problems, you doctor



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may suggest lithotripsy.

GENERAL CRITERIA FOR PERFORMING LITHOTRIPSY:

Generally, lithotripsy follows this process:

1. You will be asked to remove any clothing, jewelry, or other objects that may interfere with the procedure.
2. If you are asked to remove clothing, you will be given a gown to wear.
3. An intravenous line will be inserted in your arm or hand.
4. You may receive a sedative or anesthetic agent to ensure that you remain still and pain-free during the procedure.
5. After the sedation has taken effect, you will be positioned on a water-filled tub.



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- if 6. After the stones has been located with fluoroscopy or ultrasound, you will be positioned for the most direct access to the stone.
7. if you are awake during the procedure you may experience a light tapping feeling on your skin.
8. A sequence of shock waves will be created to shatter the kidney stones.
9. The stones will be monitored by fluoroscopy or ultrasound during the procedure.
10. A stent may be placed in the ureter to help the stone fragments pass.
11. Once the stone fragments are small enough to pass through the urinary system the procedure will end.
- The lithotripsy procedure should take about 45 minutes to 1 hour.



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After the procedure After the Surgery you will be taken to the recovery room for observation. Once your blood pressure, pulse and breathing are stable, you will be taken to home.

You may resume your usual diet and activities unless your doctor advises you differently.

You will be encouraged to drink extra fluids.

Question No. 4

SUFFIX "otomy"

1. Androtomy:- Dissection of the human body.
2. Clitoridotomy:- Plastic Surgery of the clitoral hood.
3. Bronchotomy:- A procedure that ensures there is an open airway between a patient's lung and the outside world.
4. Coeliotomy:- A large



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through the abdominal wall to gain access into the abdominal cavity.

5. Escharotomy:- procedure used to treat full thickness circumferential burns.
6. Episiotomy:- Surgical incision of the perineum and the posterior vaginal wall.
7. Hymenotomy:- Surgical removal or opening of the hymen.
8. Hysterotomy:- Incision in the uterus and is performed during a Caesarean section.
9. Laminotomy:- The partial removal of laminae.
10. Laparotomy:- Large incision through the abdominal wall to gain access into the abdominal cavity.
11. Meatotomy:- form of penile modification in which underside of the glans is split.
12. Myotomy:- Procedure in which muscle is cut.
13. Osteotomy:- A bone is cut to shorten or lengthen it or to change its alignment.
14. Phlebotomy:- An incision in a vein with a needle.
15. Pulpotomy:- Removal of a portion of the pulp, including the diseased aspect.
16. Thoracotomy:- incision into



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the pleural space of the chest.

17. Thyrotomy:- incision of the larynx through the thyroid cartilage.

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

19. Radial keratotomy:- A refractive surgical procedure to correct myopia.

20. Lobotomy:- Cutting or scraping away most of the connections to and from the prefrontal cortex, the anterior part of the frontal lobes of the brain.

21. Cordotomy:- procedures that disables selected pain-conducting tracts in the spinal cord, in order to achieve loss of pain and temperature perception.

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

23. Fasciotomy:- surgical procedure where fascia is cut to relieve tension or pressure commonly to treat the resulting loss of circulation to an area of tissue or muscle.



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Question No. 5

URINARY TRACT INFECTION:-

A urinary tract infection that affects part of the urinary tract. When it affects the lower urinary tract it is known as bladder infection. When it affects the upper urinary tract it is known as a kidney infection.

Most infections involve the lower urinary tract the bladder and the urethra. Women are at greater risk of developing a UTI than men.

Infection limited to your bladder can be painful and annoying. However serious consequences can occur if a UTI spreads to your kidneys.

CAUSES OF UTI:-

UTIs are usually caused by bacteria from poo entering the urinary tract.

The bacteria enter through the tube that carries pee out of the body (urethra).

Women have a shorter urethra.



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than men. This means bacteria are more likely to reach the bladder or kidneys and cause an infection.

Causes of UTIs include.

- Pregnancy.
- Condition that blocks the urinary tract such as kidney stones.
- Conditions that make it difficult to fully empty the bladder - such as an enlarged prostate gland in men and constipation in children.
- Urinary catheters.

SYMPTOMS:-

Pain with urination, frequent urinations
Dysuria, Hematuria, fever, flank pain
(pyelonephritis)

DIAGNOSIS:-

Urinary tract infection can be diagnosis through.

Microscopic examination of urine.



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Urinalysis.

Urine Culture.

Imaging techniques - CT scan and MRI.

TREATMENT:-

Antibiotics usually are the first line treatment for urinary tract infections.

SIMPLE INFECTION:-

Drugs commonly recommended for simple UTIs include.

Trimethoprim, fosfomycin, cephalexin

The group of antibiotic medicines known as fluoroquinolones such as ciprofloxacin

FREQUENT INFECTION:-

If you have frequent UTIs your doctor may make certain treatment recommendations such as

- low dose antibiotics initially for six months but sometime longer.
- Self diagnosis and treatment, if you stay in touch with your doctor.
- A single dose of antibiotic after sexual intercourse if your infections are related to sexual activity
- Vaginal estrogen therapy



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if you are postmenopausal.

SEVERE INFECTION:-

For severe UTI
you may need treatment with intravenous
antibiotics in a hospital.

