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**Assignment Viva Final**

**Q1: What is the role of Nuclear medicine in diagnosis and treatment of thyroid diseases?**

**Ans: - Role of nuclear medicine in thyroid disease and treatment:-**

Nuclear medicine is directly involved in both the diagnosis and treatment of benign thyroid disease, which requires an understanding of the pathophysiology and management of thyroid disorders in addition to expertise in nuclear methodology.

 Thyroid uptake and imaging, the principal nuclear tests in thyroid disease, may be used as follows:

(1) Differential diagnosis of hyperthyroidism: A very low thyroid uptake suggests destructive ("subacute") thyroiditis, a self-limited disorder, whereas a normal or elevated uptake is consistent with toxic nodular goitre and Graves' disease. Scintigraphy characteristics also help differentiate between nodular and Graves' disease.

 (2) Function of thyroid nodules: Fine-needle aspiration biopsy with cytological examination (FNAB) is used routinely to assess for malignancy in thyroid nodules. Scintigraphy may be of assistance before FNAB. "Hot" nodules are generally benign and do not require FNAB, while "cold" nodules may be malignant.

(3) Differential diagnosis of congenital hypothyroidism: Scintigraphy combined with ultrasound examination may be used to identify such conditions as thyroid agenesis, dyshormonogenesis, and incomplete thyroid descent.

Treatment of Graves' disease and toxic nodular disease with (131) it may require greater clinical involvement and decision analysis compared with thyroid uptake and imaging. The following aspects of treatment are particularly important:

(1) Risk: Radioiodine treatment may occasionally aggravate hyperthyroidism, Graves' ophthalmopathy, and airway obstruction caused by large, nodular goitres. Alternative treatments, including the temporary use of ant thyroid drugs, and surgery for nodular goitres, may be considered.

(2) Radioiodine dose: Cure of hyperthyroidism with a single (131) I treatment is desirable, though not always possible. Such factors as a large goitre, severe hyperthyroidism, and prior propylthiouracil therapy, may contribute to treatment failure.

(3) Informed consent: A detailed discussion with the patient regarding the clinical risks, outcomes, and side effects of (131) Sit is a critical component of successful management.

**Q2: What do you know about polycystic kidneys? Explain in detail.**

**Ans: - polycystic kidneys: -**

* Polycystic kidney disease (PKD) 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.
* PKD is the fourth leading cause of kidney failure. People with PKD may also develop cysts in the liver and other complications

**Symptoms:-**

* pain or tenderness in the abdomen
* blood in the urine
* frequent urination
* pain in the sides
* urinary tract infection (UTI)
* kidney stones
* pain or heaviness in the back
* skin that bruises easily
* pale skin colour
* fatigue
* joint pain
* nail abnormalities

Children with autosomal recessive PKD may have symptoms that include:

* high blood pressure
* UTI
* frequent urination

**Causes of PKD:-**

* PKD is generally inherited. Less commonly, it develops in people who have other serious kidney problems.

**Types of PKD: -** There are three types of PKD.

1. **Autosomal dominant PKD**

Autosomal dominant (ADPKD) is sometimes called adult PKD. According to the National Kidney Foundation, it accounts for about [90 %](https://www.kidney.org/atoz/content/polycystic)of cases. Someone who has a parent with PKD has 50% chance of developing this condition.

Symptoms usually develop later in life, between the ages of 30 and 40. However, some people begin to experience symptoms in childhood.

1. **Autosomal recessive PKD**

Autosomal recessive PKD (ARPKD) is much less common than ADPKD. It’s also inherited, but both parents must carry the gene for the disease.

People who are carriers of ARPKD won’t have symptoms if they have only one gene. If they inherit two genes, one from each parent, they’ll have ARPKD.

There are four types of ARPKD:

1. **Perinatal form** is present at birth.
2. **Neonatal form** occurs within the first month of life.
3. **Infantile form** occurs when the child is 3 to 12 months old.
4. **Juvenile form** occurs after the child is 1 year old.
5. **Acquired cystic kidney disease:-**

Acquired cystic kidney disease (ACKD) isn’t inherited. It usually occurs later in life.

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

Diagnosed:-

1. **Abdominal ultrasound.** .
2. **Abdominal CT scan**
3. **Abdominal MRI scan.**
4. **Intravenous pyelogram.**

Complication: -

* weakened areas in the walls of arteries, known as aortic or brain aneurysms
* cysts on and in the liver
* cysts in the pancreas and testicle
* diverticula, or pouches or pockets in the wall of the colon
* cataracts or blindness
* liver disease
* mitral valve prolapse
* anemia, or insufficient red blood cells
* bleeding or bursting of cysts
* high blood pressure
* liver failure
* kidney stones
* heart disease

Treatment: -

* pain medication, except ibuprofen (Advil), which isn’t recommended since it may worsen kidney disease
* blood pressure medication
* antibiotics to treat UTIs
* a low-sodium diet
* diuretics to help remove excess fluid from the body
* surgery to drain cysts and help relieve discomfort

**Q3: What is lithotripsy? Is it a therapeutic or diagnostic tool? What is general criteria for performing lithotripsy?**

**Ans: - lithotripsy: -**

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

* Kidney stones occur when minerals and other substances in your urine crystallize in your kidneys, forming solid masses, or stones.
* These may consist of small, sharp-edged crystals or smoother, heavier formations that resemble polished river rocks.
* They usually exit your body naturally during urination
* **Lithotripsy is a diagnostic tool**

 **Performing of lithotripsy:-**

The lithotripsy procedure should take about 45 minutes to 1 hour.

A tube called a stent may be placed through your back or bladder into your kidney. This tube will drain urine from your kidney until all the small pieces of stone pass out of your body. This may be done before or after your lithotripsy treatment.

## **Why the Procedure is Performed:-**

Lithotripsy is used to remove kidney stones that are causing:

* Bleeding
* Damage to your kidney
* Pain
* Urinary tract infections

Not all kidney stones can be removed using lithotripsy. The stone may also be removed with:

* A tube inserted into the kidney through a small surgical cut in the back.
* A small lighted tube inserted through the bladder into ureters. Ureters are the tubes that connect the kidneys to the bladder.
* Open surgery

**Risk:-**

Lithotripsy is safe most of the time. Talk to your health care provider about possible complications such as:

* Bleeding around your kidney, which may require you to get a blood transfusion.
* Kidney infection.
* Pieces of the stone block urine flow from your kidney (this may cause severe pain or damage to your kidney). If this happens, you may need additional procedures.
* Pieces of stone are left in your body (you may need more treatments).
* Ulcers in your stomach or small intestine.
* Problems with kidney function after the procedure.

**Before the procedure:**

Always tell your provider:

* If you are or could be pregnant
* What drugs you are taking, even drugs, supplements, or herbs you bought without a prescription

During the days before the surgery:

* You will be asked to stop taking blood thinners such as aspirin, ibuprofen (Advil, Motrin), warfarin (Coumadin), and any other drugs that make it hard for your blood to clot. Ask your provider when to stop taking them.
* Ask your provider which drugs you should still take on the day of the surgery.

On the day of your procedure:

* You may not be allowed to drink or eat anything for several hours before the procedure.
* Take the drugs you have been told to take with a small sip of water.
* You will be told when to arrive at the hospital.

## **After the Procedure**

After the procedure, you will stay in the recovery room for up to about 2 hours. Most people are able to go home the day of their procedure you will be given a urine strainer to catch the bits of stone passed in your urine.

**Q4: Describe all the terms used in medical dictionary with suffix “otomy”.**

**Ans:-**

* The suffix "-otomy," or "-tomy," refers to the act of cutting or making an incision, as in a medical operation or procedure.
* This word part is derived from the Greek -tomia, which means to cut.
1. **Anatomy** :- the study of the [physical structure of living organism
2. **Autotomy :-** the act of removing in appendage from the body to escape when trapped
3. **Craniotomy: -** surgical cutting of the skull.
4. **Episiotomy :-** surgical cut made into the area b/w the vigina and anus to prevent tearing during the child birthing process
5. **Gastrotomy : -** surgical incision made into the stomach
6. **Hysterotomy: -** surgical incision made into the uterus.
7. **Phlebotomy: -** incision made into a vein in order to draw blood**.**
8. **Laparotomy: -** incision made into the abdominal wall.
9. **Lobotomy: -** incision made into a lobe of gland or organ.
10. **Rhizotomy : -** surgical serving of a cranial nerve roots or spinal nerve roots
11. **Tenotomy: -** Incision made into tendon.
12. **Tracheotomy : -** incision made into the trachea

**Q5: What do u know about urinary tract infection UTI? Explain in detail.**

**Ans: - Urinary Tract Infection:-**

* A urinary tract infection or UTI is an infection in any part of urinary system.
* Including kidney, bladder, uterus, and urethra.
* In woman chances is getting high

**Symptoms:-**

* A burning felling when you pee.
* A frequent or intense urge to pee.
* Cloudy, dark, bloody, or strange – smelling pee
* Felling tired or shaky
* Fever or chills
* Pain or pressure in back or lower abdomen

**Type of UTI:-**

1. **Cystitis :-**
2. **Pyelonephritis**
3. **Urethritis**

**Causes: -**

* UTIsare a key reason why DR tell women to weep from the front to back after using the bathroom
* The urethra –the tube that takes pee from the bladder to the outside of the body is closed to the anus.
* Bacteria from the large intestine can some time get out of the anus and into the ureteral.
* From there they can travel up to the bladder
* If the infection is not treated can continued to infect the kidney.
* Women have shorter urethra then men that make it easier for bacteria to get to their bladders
* Having sex can introduce bacteria into urinary tract.

**Diagnosis: -**

* Urinary tract ultrasound
* CT scan
* MRI scan

**Treatment: -**

* Drink lots of water
* Medication to sooth pain
* Antibiotic are common treatment of UTI

**THE END**