

Investigations 2



Hello Everyone!

Task 5

Study this list of investigations for a 43-year-old salesman who presents with a blood pressure of 200 over 130. Then list them in the three categories below.

Barium meal	Radioisotope studies
Chest X-ray	Serum cholesterol
Creatinine	Serum thyroxin
ECG	Urea and electrolytes
IVP (IVU)	Uric acid
MRI scan of the brain	Urinalysis

1. Barium meal:

Q: What is barium? What is a barium meal?

- Barium is a chemical element.
- A Barium Meal: is a liquid solution (barium sulfate: $BaSO_4$) that is swallowed/taken orally بالفم by the patient before taking an X-ray to increase the contrast التباين.

Barium meal isn't required for the investigation because it has nothing to do with the blood pressure.

2. Chest X-Ray:

Q: What is a chest?

- It is a cavity in the upper part of the body containing the heart, lungs and diaphragm الحجاب الحاجز. Also called Thorax.

Q: What is an X-Ray?

- A kind of wave.
- It has a very high frequency.
- It has a short wavelength طول موجة.
- It goes through soft tissues → that's why a radiopaque مادة ظليلة is given to the patient before examining or photographing soft tissues.

Chest x-ray is essential in the investigation because it gives information about the heart, a ventricular hypertrophy and if there is an impression about ischemia.

3. Creatinine:

Q: What is Creatinine?

- It is a substance, or a form in which the creatine is excreted يطرح by the kidney in the urine.

Q: What does the investigation of the Creatinine show?

- It shows how the kidneys are functioning and if there is any damage in the kidneys. Kidneys are also closely related to the blood pressure.

Q: What is a kidney?

- An organ of the urinary system which maintains تحافظ the normal concentration تركيز of the main constituents التراكيب البنوية of life.

- Creatine is a nitrogen compound found in muscles, resulting from the breaking down of amino acid. It's produced تصنع by protein metabolism but excreted تطرح as creatinine by the kidneys.

4. ECG:

Q: What is ECG?

- It is an electrocardiogram, which is used to show the electrical activities or impulses of the heart recorded by a device called an Electrocardiograph.

ECG is essential in the investigation because heart conditions affect blood pressure.

5. IVP (IVU):

- IVP → intravenous pyelogram صورة الحويضة.
- Intravenous: through the vein عبر الوريد.
- Pyelo: أي حويضة renal pelvis بادئة بمعنى.

Q: What is IVP?

- The examination of the kidneys that involves a series سلسلة of x-ray photographs of the kidneys.
- The patient should be given radiopaque substances to have these photographs.

Q: What is a Myelography?

- An examination that involves X-Ray photographs of the bone marrow.

→ Intravenous feeding: liquid food given through needle into the vein.

IVP (IVU) is required for the investigation because the kidneys, as we said before, have a lot to do with high blood pressure.

6. MRI Scan of the Brain:

- Magnetic Resonance Imaging المرنان المغناطيسي.
- A scanning system of soft tissues and cells especially brain tissue.

Q: What is the difference between a MRI and an X-Ray?

- Both examine internal organs, but MRI gives more sensitive and accurate images of the soft tissues (it is the same as CT scan).

Q: What is a brain?

- The main part of nervous system, the other part is the spinal cord.

- CAT or CT: computerized axial tomography التصوير المقطعي المحوسب
- CAT and MRI are both scanning techniques and guided by computers.

MRI scan of the brain is not required for the investigation because it has nothing to do with blood pressure.

7. Radioisotope studies دراسة النظائر المشعة:**Q: What is an Isotope نظير?**

- It is a form of a chemical element that has the same properties, but a different atomic mass كتلة ذرية.

- Radiation is given for investigation الاستقصاء and treatment المعالجة.

Radioisotope is considered possibly useful because it is related to the kidney.

8. Serum Cholesterol:**Q: What is the serum المصل?**

- It is a liquid (watery fluid) that separates from the blood so that the blood becomes semi-liquid.

Q: What is cholesterol?

- A fatty substance found in fat الدهون. It is an essential part of cell membranes and tissues.

Q: When is cholesterol harmful?

- When excessive/large amounts accumulate تتراكم on the internal walls of blood vessels, especially arteries, and narrow them so blood can't flow easily then → people suffer from arteriosclerosis تصلب شرايين.



سؤال دورة:

Q: Where does the problem of cholesterol lie أين تكمن مشكلة الكولسترول

- When it accumulates/deposits يتراكم

Serum cholesterol is essential in the investigation because cardiovascular conditions such as atherosclerosis (which is related to cholesterol) affect blood pressure.

9. Serum Thyroxine:

Q: What is thyroxine?

- It is a hormone produced by the thyroid gland, which regulates **ينظم** the metabolism of the body.

Q: What does the thyroid gland need to produce enough thyroxine?

- It needs iodine.

Q: What activates the function of the thyroid gland?

- The pituitary gland **الغدة النخامية** (it regulates all endocrine **الصماء** glands in the body)

10. Urea and Electrolytes:

Q: What is urea?

- It is a substance produced by the Liver from excess **زيادة** amino acids and excreted **تطرح** by the kidneys into urine.

Q: What is an electrolyte?

- A chemical solution of a chemical element that can conduct **يوصل** electricity.

▪ Substance that doesn't conduct electricity → isolate **عازل**

Urea and Electrolytes are essential for the investigation because they are related to the kidneys.

11. Uric Acid:**Q: What is uric acid?**

- A chemical compound that is formed from nitrogen waste products in the body which produces crystals بلورات in the tissue around the knees النقرس causing Gout الركبة.

- Gout: an excess amount of production of uric acid which precipitates يترسب in the tissue around the joint.

Uric acid is not required in the investigation because it doesn't affect blood pressure.

12. Urinalysis تحليل البول:**Q: What is a urinalysis?**

- The analysis of urine.

Urinalysis is essential in the investigation in order to check the composition تركيب of urine.

Essential	Possibly useful	Not required
Chest X-ray	Radioisotope	Barium meal
Creatinine	Serum cholesterol	MRI scan of the brain
ECG		Serum thyroxine
IVP (IVU)		Uric acid
Urea and electrolytes		
Urinalysis		

Text of Task 5

DOCTOR 1: An ECG is essential because it will show any changes in the heart: axis, ischemia, left ventricular hypertrophy.

DOCTOR 2: I think a chest X-ray is also very important to see the heart and the extent ^{مدى} of the hypertrophy. I would also check the creatinine to see if there's any damage to the kidneys.

DOCTOR 3: An intravenous pyelogram is essential because a renal cause is very likely.

DOCTOR 2: As an initial investigation?

DOCTOR 3: No, after urea and electrolytes and after the creatinine.

DOCTOR 2: It's essential if the creatinine shows something wrong with the kidneys.

DOCTOR 3: Yes.

DOCTOR 1: Yes, both creatinine and urea and electrolytes are required. In this case I think they're more important than the ECG and chest X-ray because the patient is young, 43, and the hypertension is very high.

DOCTOR 3: Urinalysis too in this case. It's very important.

DOCTOR 2: Yes, it's routine.

DOCTOR 3: We can see if there's any glomerular damage. We may find blood, albumen, casts...

DOCTOR 1: Yes, it's very important.

DOCTOR 2: What about radioisotope studies of the kidneys?

DOCTOR 3: Not essential, but we could do this to check the function of the kidneys.

DOCTOR 1: We can see that from the creatinine and the urine.

DOCTOR 3: I know. It's not essential, but it could be useful.

DOCTOR 2: Serum cholesterol?

DOCTOR 1: Not essential. We're thinking of another type of hypertension

here. But possibly useful.

DOCTOR 2: MRI scan of the brain?

DOCTOR 3: Not required. It's of no value in this case.

DOCTOR 2: Serum thyroxine?

DOCTOR 1: Absolutely no connection with hypertension.

DOCTOR 2: Barium meal?

DOCTOR 3: Not required.

DOCTOR 2: Uric acid?

DOCTOR 1: Not necessary. If the uric acid is raised, there would be other symptoms.

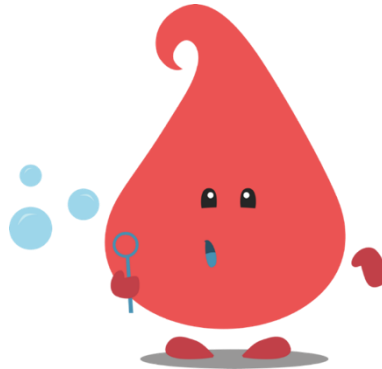
Vocabulary

ECG	Electro cardio gram (or Electrocardiograph). It records electrical activity of the heart and shows any changes in it.	مخطط كهربية القلب
Axis (n.)	Real or imaginary line that divides regular shapes into identical متطابق halves.	محور

Ischemia (n.)	Inadequate كاف غير/insufficient blood supply to an organ.	نقص تروية \ اقفار
Hypertrophy (n.)	Enlargement of size and number of an organ.	تضخم
Chest X-ray	An X-ray picture done to show the size of the heart and the lungs.	صورة الصدر بالأشعة السينية
Renal (adj.)	Associated with the kidneys.	كلوي
Initial (Adj.)	At first	أولي
Urea (n.)	Break down product of protein metabolism	البولة

	and is produced in the liver and secreted by the kidneys.	
Electrolytes (n.)	A chemical solution محلول of an element that conducts يوصل electricity.	الشوارد الكهربائية
Glomerular (adj.)	Related to glomerulus كروي which is a group of blood vessels responsible for filtering the blood in the kidneys.	كبيبي
Albumin (n.)	Common protein.	ألبومين
Casts (n.)	Fragments or pieces of blood cells	شذف دموية
Ventricular	Adjective of Ventricle: the lower part of chambers of the heart(ventricle اخت atriaالاذينة)	بطيني
Routine	Something should be done.	

THE END 😊



NOTES



RBCs