Dentistry Department
Title of the lecture: Determination of serum uric acid
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Determination of serum uric acid

Uric acid is a waste product of purine metabolism in man. It has been that the healthy adult human body contain about l.l gm of uric acid and about one sixth of this is present in the blood , and the remainder being distributed in other tissues. Two purines, adenine and guanine are important constituents of nucleic acid , and of free nucleotides such as ATP , cAMP and GTP. Xanthine and hypoxanthine are other body purines . Purines can be synthesized in the body or can be ingested . Food stuffs which contain abnormal amounts of nuclear proteins such as liver and pancreas , contains large quantities of purines . The stimulants in coffee and tea (caffeine) and in cocoa (theobromine) are xanthines . The serious consequences of abnormal uric acid metabolism depend in part upon the insolubility of uric acid and its sodium monurate salt . The former crystallizes in the kidney and urinary tract while the latter in cartilage and other tissues around the joints in gout .

Purine is present in a variety of protein foods, both animal and plant. When you eat large amounts of these purine foods, there is an increase in uric acid, which results in some health problems.

Normal value of uric acid in the body

*In males, the normal uric acid ranges from (3.4 - 7 mg / dL), * In females it ranges from (2.5 - 6 mg / dL).

Clinical Significance :

There are 3 major causes for elevated level of uric acid : Gout, increased nuclear breakdown and renal diseases .

1. Gout is a diseases condition found primarily in males and usually fint diagnosed between the ages of 40-50 yr , patients have pain and inflammation of the joints caused by precipitation of Na urates owing to the high levels of u.a. found in extracellular fluids .

2. Increased breakdown of cell nuclei such as that which occur in patients on chemotherapy for proliferation diseases such as leukemia , lymphomas multiple myeloma or polycythemia.
3. Chronic renal diseases. will also cause elevated levels of U.A.

Hyperuricemia is also a common feature of toxemia of pregnancy and lactic acidosis .

Elevated levels may also be found after ingestion of a diet rich in purine , or a marked decrease in total dietary intake , resulting in increased tissue breakdown.

In general hyperuricemia and hypouricemia are associated the with following clinical disorders.

1 .Hyperuricemia;-

- Acute and chronic Nephritis .
- Urinary obstruction
- Gout
- Diabetic ketoacidosis
- High purine diet

- Leukemia
- Malignant tumors especially with extensive necrosis
- Acute infections
- Alcohol ingestion and certain toxins and some diuretics
- Elevate uric acid levels

2 . Hypouricemia;- :

- Pernicious anemia
- Acute yellow atrophy of the liver
- Salicylate and cinchophen therapy .

Symptoms of high uric acid acid in the body

1. **Swelling body limbs:** whether fingers or toes, accompanied by swelling redness and pain.
2. **High body temperature:** especially places affected by high acidic acid.
3. **Feeling tired and tired:** the inability to exercise daily tasks naturally, and the tendency to laziness and inactivity.
4. **Nausea:** This nausea may be accompanied by vomiting repeatedly and continuously.
5. **Pain in the joints and muscles:** and the difficulty of moving it as a result of feeling pain with any movement you do.

Treatment of high uric acid acid in the body

1. **Drink water in large quantities:** not less than 2 liters per day, preferably more than this, because water helps in the kidneys function well, and thus rid of salts and the rise of this acid.
2. **Avoid caffeine-containing beverages:** coffee, tea or soft drinks. The caffeine compound causes dehydration and the difficulty of getting rid of the acid.
3. **Eat diuretic foods** such as onions, carrots, lettuce, cucumber, cabbage, tomatoes, melons, as well as diuretic herbs such as cinnamon, anise, mint, cumin, barley and parsley.
4. **Reduce the intake of foods rich in purine:** either animal proteins or plant proteins.