

Creatinine

- Creatinine is a heterocyclic nitrogenous compound, formed in muscle from the high energy storage compound (creatine phosphate) at a rate dependent on muscle bulk .
- Normal range :
 - Male : 0.8 – 1.3 mg / dl
 - Female : 0.5 – 0.9 mg / dl

- Increased serum creatinine level occurs in :
 - 1 . Impaired renal function .
 - 2 . Chronic nephritis .
 - 3 . Urinary tract obstruction .
 - 4 . Muscle diseases such as gigantism and acromegaly .
 - 5 . Congestive heart failure .
 - 6 . Trauma .

- Decreased creatinine levels may be occurs in :
 - 1 . Elderly .
 - 2 . Decreased muscle mass .
 - 3 . Muscle atrophy .

Notes :

- 1 . Values of creatinine are lower in children than adult , lower in women than in men because the bulk of muscle in male is greater than that in female plasma and lower during pregnancy .
- 2 .Some drugs such as acetyl salicylic acid (aspirin) and cimetidine (tagamet) { tablets used for treatment of duodenal ulcers } increase plasma creatinine by inhibiting tubular secretion of creatinine .

3 . The kidneys has three major functions :

- Extraction of waste product .
- Maintain extracellular fluids volume and compositions.
- Hormones synthesis such as erythropoietin (the secretion of these hormone will be affected in the renal disease) .

4 . Biochemical test of renal functions :

- Measurment of GFR (measurment of creatinine) .
- Blood urea .
- General urine analysis (presence of albumin in urine and RBCs) .

Creatine Kinase isoenzyme

Creatine kinase is a dimer of BB , MB ,
MM isoenzymes.

CK-1 or BB is found in brain .

CK-2 or MB is found in heart only .

**CK-3 or MM is found in skeletal and
heart muscle .**

**The appearance of CK-2 in the blood is
diagnostic of myocardial infraction
because the heart is the only tissue
containing CK-2 .**