**Cardiac Enzyme tests**

Enzyme levels to assess how well the body’s systems are functioning. Used to determine whether there has been any tissue damage. Tests performed to help diagnose a heart attack and to determine the extent of damage to the heart muscle.The most common cardiac enzyme tests performed are: -

\*Creatine kinase (CK)

\*Cardiac troponin

\*lactate dehydrogenase (LHD)

\*aspartate aminotransferase (AST)

Combination of troponin and CK levels is more specific to the heart

 **Creatine kinase (CK)**

The muscle cells in your body need CK to function properly. Creatine phosphokinase isoenzymes play a key role in the intracellular energy transport from mitochondria to myofibrils and other sites of energy utilization . CK is made up of three isoenzyme forms CK-MB, CK-MM,CK-BB.

CK-MB is the substance that rises if your heart muscle is damaged ,CK- MM rises with other muscle damage.

-CPK-BB found mostly in the brain and lungs .

-CPK-MB found mostly in the heart

-CPK-MM found mostly in skeletal muscle

**CK-MB**

 The primary indicator used to diagnose a heart damage because it exists in the highest amount in the heart. CK-MB is the substance that rises if your heart muscle is damaged . If CK-MB makes up more than 5 percent of a total CK level, a heart attack is suspected. CK-MB levels typically increase to above normal levels about six hours after a person has had a heart attack.

**Cardiac troponin**

There are two types – Troponin T (cTNT) & Troponin I (cTNI). These proteins control the interactions of two other substances (actin and myosin) that cause the heart muscle to contract or squeeze. Normal levels in the blood are very low, but they rise sharply and quickly in response to a heart muscle injury, usually within two or three hours after the beginning of a heart attack. cardiac troponin will also rise in response to angina, which is one reason the two tests are often performed together. sensitive to damage than CK, valuable at detecting mild heart attacks and early detection. elevated levels are specific to a heart injury.

**lactate dehydrogenase**

LDH is no longer considered a diagnostic tool for heart. LDH is an enzyme that is found in almost all of the body's cells (as well as in bacteria) and is released from cells into the fluid portion of blood when cells are damaged or destroyed. the blood level of LDH is a general indicator of tissue and cellular damage.

**Aspartate aminotransferase**

 Also known as serum glutamic-oxaloacetic transaminase (SGOT), aspartate aminotransferase (AST) . convert amino acids to amino acid residues, which is vital to energy production . Increases in AST levels are proportional to cell damage within the body, making it an important tool for monitoring the progression of damage and the healing process.

Aspartate aminotransferase . The degree to which AST is elevated can also help pinpoint the type of cell damage that has occurred.

AST is sometimes used to track heart attack patients, it is not used as commonly for this purpose as CK or troponin.

**Serum Cholesterol**

Not used to diagnose or monitor a disease but is used instead to estimate risk of developing a disease — specifically heart disease .High blood cholesterol has been associated with hardening of the arteries (atherosclerosis), heart disease, and a raised risk of death from heart attacks.