

Graphic abstract -mechanisms of increased basal energy expenditure during and immediately after hemodialysis justification of prescription of low temperature hemodialysis for hemodynamic stability -

Loss of amino acids in to dialysate – activation of muscle proteolysis

Volume theory-increased cardiac output and activation of sympathetic system due to hypovolemia

Microinflammation theory- muscle proteolysis caused by cytokines due to dialyzer bio-incompatibility and dialysate endotoxin

Hormone theory—activation of stress hormone, such as cortisol resulting in protein catabolism, glucagon and catecholamines

Increased non-esterified fatty acids (NEFA)-- due to heparin anticoagulation and loss of glucose into dialysate and then oxidation of NEFA

Increased basal energy expenditure

Volume theory- compensated vasoconstriction of skin vessels due to hypovolemia by ultrafiltration

