

Evaluation of some hemostatic parameters in patients with end-stage renal disease: Relation to dyslipidemia and hemodialysis therapy

Nashwa Khairat Abousamra
Mansoura University, Egypt

Background: Patients with end stage renal disease (ESRD) are prone to hemorrhagic complications and simultaneously at risk for a variety of thrombotic complications. Abnormal lipid metabolism and endothelial cell injury are considered as potential risk factors for atherothrombosis in these patients. This study assessed the status of some hemostatic parameters in ESRD patients and defines their relation to lipid profile and hemodialysis therapy.

Patients and Methods: Twenty-four patients with end-stage renal disease were selected for the study (Ten of them were under conservative treatment and fourteen were under regular hemodialysis therapy). Ten age- and gender-matched healthy subjects were recruited as a control group. All patients and controls were subjected to routine laboratory work up as well as measurement of plasma lipids, prothrombin time (PT), activated partial thromboplastin time (APTT), fibrinogen, soluble fibrin monomer, ADP-induced platelet aggregation, plasminogen and plasminogen activator inhibitor-1 (PAI-1).

Results: We found statistically significant increase of triglycerides, LDL-C, fibrinogen and PAI-1 levels, prolongation of APTT and significant decrease of HDL-C level, platelet count, prothrombin activity and impairment of platelet aggregation response to ADP in ESRD patients compared to controls ($P < 0.05$). Furthermore, we demonstrated a significant increase of platelet count in dialyzed compared to undialyzed ESRD patients ($P < 0.05$). Also we found a significant negative correlation between serum triglyceride level and plasminogen concentration ($r = -0.644$; $P = 0.044$) and between LDL-C levels and platelet count ($r = -0.709$; $P = 0.022$) in undialyzed ESRD patients.

Conclusions: Profound changes of hemostasis and plasma lipids do exist in ESRD patients and is not significantly corrected by hemodialysis therapy. Elevated fibrinogen level, low PAI-1 level and hypertriglyceridemia might contribute to hypercoagulability in ESRD patients which is not ameliorated significantly by the currently used hemodialysis therapy. Newer methods of dialysis or more biocompatible filters or techniques may offer potential benefits in these conditions.

abosamrana@yahoo.com