

COMPARISON OF COGNITIVE FUNCTIONS BETWEEN DIABETIC AND NON DIABETIC CHRONIC KIDNEY DISEASE PATIENTS (STAGE 5D) AND ITS CORRELATION WITH SERUM URIC ACID, HEMOGLOBIN AND SERUM FERRITIN LEVELS.

Introduction: Cognitive deterioration is a major problem in elderly creating difficulties to carry out their daily activities. In India there is increased incidence of Chronic Kidney Disease (CKD). In CKD, various factors like diabetes, iron deficiency anemia, uremic toxins contributes to rapid cognitive deterioration.

Aim and Objectives: To assess and compare the cognitive functions between diabetic and non diabetic chronic kidney disease patients (Stage 5D) and to correlate its relation with serum uric acid, hemoglobin and serum ferritin Levels.

Materials and Methodology: 30 diabetic CKD and 30 non diabetic CKD patients with age 18 - 60 years and eGFR < 15 ml/min/1.73 m², for more than 3 months were included. Age and gender matched normal individuals were used as controls. After getting informed consent their cognitive functions were assessed using NIMHANS neuropsychology battery 2004. Blood samples were collected to estimate serum uric acid, haemoglobin and serum ferritin levels.

Results: There exist significant cognitive deterioration in CKD patients compared to their controls in all domains including attention, executive functions, comprehension, learning and memory. In sub-group analysis it was found out that cognitive dysfunction was more in diabetic CKD compared to non diabetic CKD. There exist a strong correlation between cognitive deterioration and hyperuricemia, reduced haemoglobin and higher ferritin levels. (Significant at $P < 0.001$)

Discussion: Diabetes leads to oxidative stress and endothelial dysfunction. Uric acid when excess, turns into a pro coagulant causing vascular thrombosis. Iron deficiency anemia affects the mitochondrial function and synthesis of neurotransmitters. All these factors causes rapid deterioration of cognition in CKD.

Conclusion: In CKD, controlling diabetes, hyperuricemia and correcting iron deficiency anemia may improve the cognition which inturn causes improvement in quality of life.

Key Words: Cognition, CKD, diabetes, hyperuricemia, iron deficiency anemia.