**THE EFFICACY OF ASCORBATE-RICH DIALYSATE TO ATTENUATE ANAEMIA IN MAINTENANCE HEMODIALYSIS PATIENTS**

**Introduction:** Hemodialysis (HD) patients with functional iron deficiency (FID) often develop resistance to recombinant human erythropoietin (Epo). The contributory role of chronic inflammation and oxidative stress in its pathogenesis is poorly understood. Recent studies have shown that intravenous ascorbic acid (IVAA) administration could override rhEPO resistance in HD patients. Yet little is known about whether supplementation of ascorbic acid (vitamin C) via extracorporeal circuit has substantial effects on minifying oxidative impairment and thus improving Hb levels. This study was undertaken to test the effects of Ascorbate-Rich Dialysate to Attenuate anaemia in Maintenance HD Patients.

**Patients-Methods:** 13 HD patients (mean age: 71.3±14.6 years) were recruited for the study. For a period of 8 months they were receiving Ascorbate-Rich Dialysate (2g/lt) and we compared their anaemia profile (Hb, Hct, ferritin , TSAT, rhEPO dose) during this period with the previous 8 months that they were receiving conventional dialysate. Additionally we evaluated their “chronic inflammation status” estimating CRP and Soluble Urokinase Plasminogen Receptor (Supar) levels over the study period and also lipids and nutritional profile.

**Results:** CRP levels declined with the use of ascorbate-rich dialysate from 12.28 to 3.86 mg/L while supar levels remained stable over the whole study period (15 mg/ml). Mean Hct levels increased significantly from 35.56±2.37% with conventional dialysate to 39.98±3.64 % with 8 months usage of ascorbate-rich dialysate (p<0.05). The above notice started to appear even after 3 months under vitamin C –rich dialysate (35.56±2.37 vs 37.96 ± 3.06, p<0.05). The same conclusion was noticed with Hb levels (11.23±0.94 vs 12.10±1.04, p<0.05 after 3 months under vit c, 11.23±0.94 vs 12.59±1.38, p<0.05 after 8 months under vitamin C ). Mean rhEPO dose (darbepoetin alfa) decreased from 48.63 to 33.46 mcg/mL per week with usage of ascorbate-rich dialysate. Ferritin (>500), albumin, TSAT (>20) and PTH levels remained stable over the whole study period. Cholesterol, triglycerides and albumin levels did not change significantly with the change of the conventional dialysate to ascorbic-rich one.

**Conclusions:** Although our study is limited by small numbers of subjects, short durations of follow-up, these results suggest that compared with standard care, ascorbic acid in dialysate bath may result in an increase in hemoglobin concentration and decrease in rHuEPO requirements. Longer term studies are required to confirm these results, provide information about adverse events, and determine whether these changes translate into improved patient outcomes and cost-effectiveness.