

# DIFFERENTIAL EVOLUTION OF RENAL SCARRING IN CAST NEPHROPATHY DESPITE EARLY REDUCTIONS IN SERUM FREE LIGHT CHAINS.

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**BACKGROUND AND AIMS:** Most cases of acute renal failure (ARF) due to myeloma cast nephropathy do not recover renal function. The *in situ* processes that lead to these poor outcomes are poorly understood. Recent studies have indicated that chemotherapy combined with high cut-off haemodialysis (HCO-HD) may improve renal recovery rates. We report 4 cases of ARF treated with chemotherapy and FLC removal by HCO-HD. Whilst significant reductions in serum FLC levels were achieved, all 4 remained dialysis dependent at 6 weeks. They were then assessed by further renal biopsy.

**METHODS:** The diagnoses of MM and cast nephropathy were confirmed in all patients before chemotherapy and HCO-HD were commenced. Dialysis was performed using a dialyser with a molecular weight cut-off of up to 60 kD. Two dialysers were used in series to increase both effective surface area and solute clearance by ultrafiltration. Dialysis was performed for 6-8 hours per session, up to 5 times during the first week, alternate days in the second week and then thrice weekly, until the serum FLC concentration was maintained below 500 mg/L.

**RESULTS:** The biopsies showed differential progression of chronic damage from the first biopsy to the second, across the group: patient 1 showed moderate scarring on the biopsy with no progression of scarring by biopsy ; patient 2 sustained a progression of scarring from 0% to 50% despite a rapid and sustained fall in FLC to <10% of starting level at 6 weeks; patients 3 and 4 showed intermediate levels of progression.

**CONCLUSION:** Although chemotherapy combined with high molecular weight cut-off haemodialysis effectively reduces the FLC burden on the kidneys, the differential renal toxicity of light chain clones can quickly promote rapid scarring. This identifies the importance of early diagnosis and treatment aimed at rapid reductions of FLC in myeloma and acute renal failure.