Effective Removal of κ -Free Light Chains with Hemodialysis Using Fresenius Ultraflux[®] EMiC[®]2 Dialyser in a Patient with Myeloma Cast Nephropathy, with Associated Cost Savings

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Dear Editor,

Cast nephropathy is the commonest cause of acute kidney injury (AKI) in patients with multiple myeloma (MM) [1]. There has been a recent interest in extended hemodialysis (HD) with high cut-off (HCO) dialysers for removal of immunoglobulin-free light chains (FLC), combined with effective chemotherapy to improve renal and patient outcomes [2, 3]. The conventionally used Gambro HCO 1100 dialyser is expensive. We report a patient with kappa (κ) FLC MM and AKI with significant reductions in κ -FLC levels using the cheaper Fresenius Ultraflux[®] EMiC[®]2 dialyser.

A 59-year-old Caucasian lady with a background of recurrent MM after autologous bone marrow transplant, treated with lenalidomide, monthly zoledronic acid infusions and later with bortezomib, presented with another relapse and AKI. She had previously had AKI due to biopsy proven cast nephropathy, acute tubular injury and eosinophilic interstitial nephritis secondary to zoledronic acid that was treated with steroids with near complete recovery of renal functions to a serum creatinine of 113 μ mol/l. Bortezomib had to be withheld because of disseminated herpes zoster infection, but 4 months later, κ -FLC levels increased from 105 to 11,367 mg/l, with serum creatinine of 393 μ mol/l at presentation. Bortezomib was recommenced along

with cyclophosphamide. For AKI due to probable cast nephropathy, HCO HD with Fresenius Ultraflux[®] EMiC[®]2 dialyser, 8 h/session, 5 days/week was commenced. After 2 weeks of treatments, although κ -FLC

levels reduced an overall 81% to 2,159 mg/l (fig. 1), she remained dialysis dependent and succumbed to her illness with hospital acquired pneumonia and respiratory failure.

Fig. 1. Line graph demonstrating successful removal of κ -FLC with HCO dialysis using Fresenius Ultraflux[®] EMiC[®]2 dialyser of up to 15–36% at each session and overall 81% over 2 weeks.

HCO dialysers use high-flux membranes that have larger pores to allow removal of higher molecular weight substances, thereby facilitating removal of FLC immunoglobulins. The conventional Gambro HCO 1100 dialyser, that costs approximately \$1,479/dialyser in Australia, allows removal of substances

with molecular weights up to 45 kDa. In contrast, the Fresenius Ultraflux® EMiC®2 dialyser allows removal of substances with molecular weights up to 40 kDa, large enough to remove κ -FLCs (22 kDa) but not the larger λ -FLC (45 kDa) and cost approximately a third at \$475/dialyser.

In this report, we have demonstrated successful and significant reductions of serum κ -FLC levels with extended HD using the Fresenius Ultraflux® EMiC®2 dialyser, with associated cost savings. Further studies with this dialyser would be required to assess renal and patient outcomes in patients with κ -light chain MM.

References

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