Rapid response to high cut-off haemodialysis and bortezomib therapy in a patient with acute renal failure and plasma cells dyscrasia

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To the Editor,

Renal involvement is a complication of plasma cell dyscrasias. Electrochemical properties of abnormal light chains are responsible for histological renal pictures. Bortezomib is the first proteasome inhibitor approved for treatment of multiple myeloma and amyloidosis. It prevents the activation of NF-kB that controls the genes encoding IL-6, TNF-alpha and other cytokines and growth factors. Our experience: a 29-year-old woman, suffering from ulcerative colitis successfully treated with sulfasalazine, without renal disease history, was admitted to hospital for acute kidney injury (creatinine 10mg/dL) and anaemia without signs of thrombotic microangiopathy. Serum protein electrophoresis showed a beta-2-monoclonal peak; the serum immunofixation was positive for λ light chains; k- and λ-free light chains (FLC) levels were 37mg/L and 1750mg/L respectively with k/λ ratio=0.02. Microbiological, coagulation and other immunological investigations were unremarkable. The patient started haemodialysis treatment. Renal biopsy revealed a cast-nephropathy picture, negative Congo-red staining, without glomerular deposits; the immunofluorescence showed k light chains but not λ light chains in tubular basement membranes. Abdominal fat biopsy was positive for AL amyloid. Bone marrow biopsy showed 10% of plasma cells infiltration without morphological or cytometric clonality markers; total body CT scan was negative for bone lesions. Because of plasma cell dyscrasia and severe renal involvement, even in absence of a diagnostic definition, was performed a combination treatment of direct removal of FLCs and chemotherapy. Following Hutchison's studies,[1,2] we performed extended haemodialysis (HD) treatment with high cut-off (HCO) dialyzers (Theralite®, Gambro) and bortezomib 1.3mg/m^2 + dexamethasone 20mg/day (days 1-4-8-11) therapy with improvement of renal function (creatinine 1,6mg/dL) and normalization of FLC chains levels (k- and λ-FLC 5mg/dL and 6mg/dL respectively with k/λ ratio=0.85) after the first chemotherapy cycle and 7 HCO-HD. Later, we performed 3 additional cycles with bortezomib + dexamethasone at weekly administration (days 1-8-15-22 for a 35 days cycle) and a peripheral blood stem cells harvest for autologous transplantation program.

Conflict of interest

The authors declare that they have no conflicts of interest related to the contents of this article.

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Efficacy of High Permeability Haemodialysis in Acute Renal Failure due to Vancomycin

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To the Editor,

It was classically accepted that vancomycin excretion through low permeability membranes during conventional haemodialysis (HD) was negligible (less than 5%). With high permeability membranes this has changed, which has important effects when treating vancomycin overdose. We report a case of acute oliguric renal failure secondary to vancomycin overdose resolved by the use of standard HD with high-permeability membranes.

An 83-year-old male with high blood pressure, type 2 diabetes mellitus, who had suffered a myocardial infarction 10 years before and with cognitive impairment due to Alzheimer's disease, was admitted with aspirative pneumonia. He was treated with amlodipine, metformin, aspirin, repaglinide and risperidone. On arrival he was suffering from moderate prerenal kidney failure (plasma creatinine [Cr]: 1.7mg/dl, estimated glomerular filtration rate calculated by the MDRD-4 formula [eGFR]: 40ml/min/1.73m^2), which after being corrected stabilized (Cr: 0.95mg/dl, eGFR 80ml/min/1.73m^2), with elemental anodyne urine. He was treated with furosemide piperacillin and tazobactam. Due to a poor prognosis, intravenous vancomycin was added on the fifth day at 0.5g/12 hours (13mg/kg/day). Between the tenth and twelfth day urine volume decreased (200-400ml/day) and Cr 6.3mg/dl (eGFR: 9 ml/min/1.73m^2) and elemental urine were seen suggestive of acute tubular necrosis (ATN). Doppler Ultrasound: preserved kidney size with no hydronephrosis with preserved intrarenal vasculature. Immunology and viral serology were negative. In 48 hours, Cr rose to 8.4mg/