Autologous Stem Cell Transplantation in an Elderly Patient with Dialysis-Dependent Multiple Myeloma and Cast Nephropathy

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ABSTRACT

Background. Autologous stem cell transplantation (ASCT) is standard of care for transplant-eligible multiple myeloma (MM) but is frequently withheld from older patients with severe renal impairment. We report a 67-year-old man in whom ASCT proved feasible and beneficial despite advanced age, dialysis-dependent cast nephropathy, and resistant disease.

Case. IgA-kappa MM (ISS III; standard-risk cytogenetics: no del17p, t(4;14), t(14;16) or 1q gain) was diagnosed in 2022 at age 64, presenting with creatinine 1242 µmol/L requiring hemodialysis. He received bortezomib–cyclophosphamide–dexamethasone (VGPR), ixazomib–dexamethasone maintenance, and, at relapse, daratumumab–lenalidomide–dexamethasone, achieving only partial response (M-protein 2.29 g/L); CKD stage IV persisted. The first mobilization (cytarabine) failed; plerixafor-based salvage yielded only 3.52×10^6/kg CD34+ cells sufficient for a single ASCT. A pre-transplant PET-CT confirmed complete metabolic response. Conditioning used eGFR-adjusted melphalan 140 mg/m².

Course. Post-transplant, the patient developed febrile neutropenia, E. coli bacteremia, neutropenic enterocolitis with diverticulitis, transient atrial fibrillation, and acute-on-chronic kidney injury (creatinine 454 µmol/L, eGFR 10 mL/min) requiring intermittent hemodialysis. A biomarker-driven approach escalating broad-spectrum antimicrobials on rising CRP/procalcitonin before overt sepsis combined with timely renal replacement therapy led to resolution of all complications. Severe pancytopenia (platelet nadir 10×10^9/L) required red-cell and platelet transfusion support. Hematopoietic engraftment occurred at day +10.

RESULTS

Response deepened to a deep partial response with near-VGPR kinetics (M-protein 1.10 g/L, trace urinary Bence-Jones). This dual anti-tumor and renal benefit was notable: renal function improved (creatinine 230 µmol/L, eGFR 27 mL/min by January 2026), reflecting reversal of light-chain-mediated injury. Daratumumab–lenalidomide maintenance was planned.

CONCLUSION

ASCT can deepen response and improve renal function even in elderly MM patients with dialysis-requiring cast nephropathy. eGFR-adjusted melphalan, individualized mobilization, and prompt multidisciplinary, biomarker-guided management of infectious and renal complications are decisive. Neither chronological age nor renal failure should, by itself, preclude transplantation.

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The authors declare no conflicts of interest.

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