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Response and dynamics of renal function for transplant-eligible multiple myeloma patients who were treated with novel agent: multicenter retrospective study

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Objectives: Natural course of renal impairment in newly diagnosed multiple myeloma (NDMM) is uncertain. This study aimed to identify the dynamics of renal function after autologous stem cell transplantation (ASCT) following induction treatment using novel agent in transplant-eligible NDMM patients with renal insufficiency (glomerular filtration rates (GFR) ≤ 50 ml/min/1.73 m²) at diagnosis.

Methods: In our multicenter registry database consisting of 1,795 patients with plasma cell disorder, we collected 140 NDMM patients who received induction treatment with proteasome inhibitor and/or immunomodulatory drugs and presented renal insufficiency at initiation of treatment. Myeloma and renal response after ASCT were evaluated using the international myeloma working group response criteria. To evaluate standardized improvement of renal function regardless of baseline GFR, renal benefit was defined as a sustained (for at least 3 months) increase of baseline estimated GFR with more than 15 mL/min/1.73 m²

Results: With mean baseline GFR of 24.8 ± 13.9 , renal complete response (renalCR) and renal benefit rates were 49.3% and 67.9%, respectively. In multivariable analysis, factors associated with poor achievement of both renalCR and renal benefit were age ≥ 55 years, change of GFR between 3 days prior to induction chemotherapy and the date of induction treatment with <5 mL/min/1.73m², and light chain type NDMM. Hypertension and advanced GFR were also negatively associated with poor achievement of renalCR. The mean GFR improved up to the time of ASCT, then decreased over time. Mean GFR improved until 4 months post-intention-to-treatment (ITT) compared to each GFR at previous time point, whereas these significances dissipated 5 months post-ITT. In a subgroup (n=55) of patients with renal insufficiency at ASCT, dynamics of GFR presented temporary increase at 1 month post-ASCT which reverted to baseline 2 months post-ASCT.

Conclusions: These results provide a better understating of the natural course and renal outcomes of the transplant-eligible NDMM patients with renal insufficiency.