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652.MULTIPLE MYELOMA: CLINICAL AND EPIDEMIOLOGICAL

The Important Role of Egfr Change in Patients with Multiple Myeloma

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Background. Renal impairment is a common complication in multiple myeloma (MM) patients and related to a higher mortality. However, whether the change of estimated glomerular filtration rate (eGFR) is associated with prognosis is not clear currently.

Patients and Methods. A total of 1552 myeloma patients in West China Hospital from July 1, 2008 to September 1, 2022 were retrospectively included in this study, patients with dialysis or complicated with other malignancy were excluded. All patients had at least 3 measurements of creatinine and eGFR between 6 months and 2 years after baseline. The 1-year change in eGFR (slope) was calculated by linear regression, patients were divided into 3 groups by the eGFR slope (sustained group: eGFR slope was -5~5 ml/min per 1.73 m2 per year over 2 years; increased group: eGFR Slope > 5 ml/min per 1.73 m2 per year over 2 years; decreased group: eGFR Slope < -5 ml/min per 1.73 m2 per year over 2 years), the Kaplan-Meier survival analysis, multiple Cox regression model and Restricted cubic spline (RCS) analysis were applied to explore the association of eGFR slope with the best efficacy and progression of myeloma patients.

Results. After a median follow-up of 21 months, 977(62.95%) patients had reached VGPR or CR (the best efficacy), 24.1% patients experienced progression, the survival status is currently being followed up. The eGFR decline more than 5 ml/min per 1.73 m2 per year over 2 years (decreased group) was showed to have a higher risk of disease progression (P=0.01, Figure 1a) and to be an independent risk factor for disease progression, both in patients with (eGFR<60 ml/min per 1.73 m2) or without (eGFR>60 ml/min per 1.73 m2) renal failure (Table 1). The RCS analysis showed that the decline of eGFR within 2 years was positively related to the risk of disease progression, while the eGFR rise with a certain range could reduce the risk of progression (0-6.4 ml/min per 1.73 m2 per year) (Figure 1b). Inversely, the eGFR increased group showed a higher possibility of acquiring very good partial remission (VGPR) or complete remission (CR) (Figure 1c, P<0.001), and was a beneficial factor of reaching VGPR or CR for MM patients (HR 1.3, 95%CI 1.05-1.62, P=0.015, Table 1). The RCS analysis showed that eGFR slope was linearly correlated with patients' VGPR or CR rate (Figure 1d). Notably, in patients without renal insufficiency at baseline (eGFR>60 ml/min per 1.73 m2), eGFR improvement did not increase the rate of VGPR or CR (Table 1).

Conclusions. eGFR decreasing >5 ml/min per 1.73 m2 per year over 2 years could increase the risk of disease progression in MM patients with or without renal impairment, while eGFR increasing at a certain range could reduce progression risk. For myeloma patients with renal impairment, eGFR increasing may improve the rate of VGRP or CR in MM patients.

Disclosures No relevant conflicts of interest to declare.
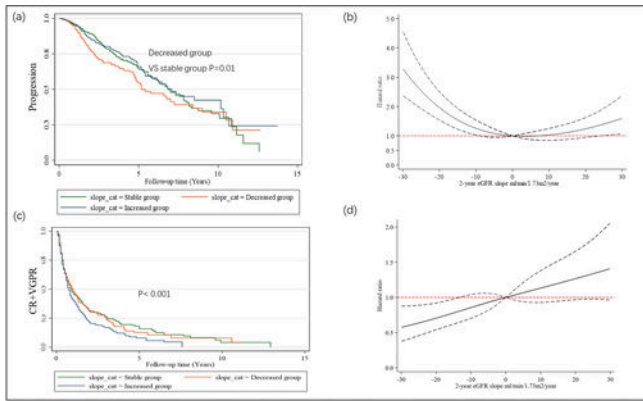
Figure 1. (a) the KM analysis of PFS; (b) the association between eGFR slope and risk of progression or relapse by RCS analysis; (c) the KM analysis of reaching VGPR or CR; (d) the association between eGFR slope and the possibility of reaching VGPR or CR by RCS analysis. eGFR: estimated glomerular filtration rate; KM: Kaplan-Meier; RCS: Restricted cubic spline; VGPR: very good partial remission; CR: complete remission.

Table 1. The association of eGFR slope within 2 years with survival and efficacies by Multivariate COX regression analysis.

Variables	HR	P-value	HR	P-value	HR	P-value
Progression			eGFR<60 group		eGFR>60 group	
Stable group	Reference					
Decreased group	1.37 (1.03, 1.83)	0.03	1.40 (1.05, 1.87)	0.024	1.28 (1.02, 1.79)	0.034
Increased group	0.92 (0.65 1.30)	0.64	0.99 (0.70, 1.40)	0.96	0.88 (0.63, 1.31)	0.91
VGPR+CR						
Stable group	Reference					
Decreased group	0.97 (0.79, 1.20)	0.77	0.55 (0.31, 0.98)	0.042	1.05 (0.83, 1.32)	0.68
Increased group	1.30 (1.05, 1.62)	0.015	1.52 (1.06, 2.20)	0.025	1.12 (0.84, 1.48)	0.45

The model has been adjusted by gender, age, ISS stage, level of M protein and baseline eGFR. eGFR: estimated glomerular filtration rate; VGPR: very good partial remission; CR: complete remission.

Figure 1

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