Outcomes of early versus delayed invasive strategy in dialysis patients with non-ST-elevation acute coronary syndrome

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Background: The association of early invasive strategy with improved outcomes in patients with non-ST-elevation acute coronary syndrome (NSTE-ACS) was previously established, particularly those at high risk. This benefit has not been evaluated in dialysis patients presenting with NSTE-ACS.

Purpose: This study aimed to investigate the prognostic impact of early invasive strategy in maintenance dialysis patients with NSTE-ACS.

Methods: This is a retrospective analysis of 455,617 consecutive cardiac catheterizations performed at 30 cardiac centers in China between January 2015 and June 2021. Patients were excluded if they did not receive dialysis therapy or received dialysis for less than 3 months, had normal coronary anatomy, or were admitted repeatedly. Patients were dichotomized into two groups based on the time interval from admission to invasive assessment: early (within 24 hours) invasive and delayed (more than 24 hours) invasive groups. The primary outcome of interest was all-cause mortality during follow-up. Standard univariate and survival methods were used. Propensity score matching and inverse probability of treatment weighting were used to diminish baseline differences.

Results: Overall, 1,012 patients met the final criteria, with a mean age of 61.7 ± 10.4 years, and 398 (39.3%) of them received early invasive treatment. After a median follow-up of 21.8 months (interquartile range 12.6-34.9 months), 334 (33.0%) deaths were identified. Similar all-cause mortality rate was observed in the early invasive group compared with delayed invasive group (33.9% vs. 31.7%, respectively). After adjusting for baseline risk factors, early invasive was not associated with reduced all-cause mortality (hazard ratio 0.86, 95% confidence interval 0.69-1.08, p = 0.198). Similar results were identified in the propensity score matching cohort and inverse Probability of Treatment Weighting cohort. Furthermore, no significant interaction was observed between the timing of invasive assessment and the Global Registry of Acute Coronary Events risk score (≤140 vs. >140) on the risk of all-cause death (p for interaction =0.858).

Conclusion: This multicenter study demonstrated comparable all-cause mortality between early invasive and delayed invasive groups in dialysis patients with NSTE-ACS. These findings were inconsistent with previous studies on NSTE-ACS patients with normal renal function, and further prospective studies are needed to confirm.