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Validation of the Classification Code for Treatment Results in the Korean National Health Insurance Service Database

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Objectives : Traditionally, all-cause mortality in maintenance hemodialysis (HD) patients using the Health Insurance Review and Assessment Service (HIRA) database has been inferred through an operational definition, which defines death as the absence of claims data for a specific period (e.g., 90 or 150 days). However, some researchers have suggested that the 'in-hospital death' designation within the treatment results code in HIRA could serve as a direct indicator of mortality. This study aimed to evaluate the reliability of the 'in-hospital death' classification within the treatment results code.
Methods : We analyzed maintenance HD patients aged over 18 years from the National Health Insurance Service (NHIS) database between 2010 and 2019. Patients confirmed as deceased through the NHIS Certificate Database were assigned to Group A (Reference Group), while patients classified as 'in-hospital death' in the treatment results code were assigned to Group B. Group C included patients presumed dead based on the operational definition, which was defined as the absence of any claims data for more than 150 days. The accuracy of Group B and Group C was evaluated by comparing them with Group A.
Results : During the study period, 118,386 patients were included (59.4% male, mean age: 64.1 years). A total of 51,146 patients (43.2%) were confirmed deceased and assigned to Group A. 39,447 patients were classified as 'in-hospital death' in the treatment results code (Group B), and 51,758 patients met the operational definition of mortality (Group C). The accuracy of the 'in-hospital death' classification (Group B) compared to the mortality of Group A was 89.8%, which was significantly lower than the 99.5% accuracy of Group C ($P < 0.001$).
Conclusions : The 'in-hospital death' classification in the HIRA treatment results code demonstrates lower reliability compared to the operational definition of mortality and is therefore not suitable for mortality research using HIRA database.