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Validation of the operational definition of mortality analysis in hemodialysis population using the health insurance review and assessment service database

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Objectives: The Health Insurance Review and Assessment Service's (HIRA) medical claims data has been used in various studies for hemodialysis patients. Yet, it does not provide any information on out-of-hospital mortality. Mortality analysis using the HIRA data has been conducted using various operational definitions, which are not validated. This study aims to validate the operational definitions of mortality when analyzing the HIRA database.

Methods: This study utilized the claims data of the Korean National Health Insurance Service (NHIS) between January 2008 and December 2019. We estimated the mortality by the operational definitions applied in previous studies using the HIRA database and compared it with the mortality information of the NHIS to validate accuracy.

Results: A total of 128,876 patients who started maintenance hemodialysis between January 2009 and December 2019 were analyzed. The estimated mortality's overall accuracy was the highest at 96% in the group where mortality was defined as an absence of claims data for 150 days. If the period of no claims data was set to 90 days or less, there was a risk of overestimating the mortality for the entire study period (Figure 1). When it was set to 180 days or more, there was a risk of underestimating the mortality as the follow-up time was close to the end of the study period (Figure 2).

Conclusions: When the mortality analysis of maintenance hemodialysis patients is performed using the HIRA data, it is most accurate to set the operational definition period as an absence of claims data for 150 days.

Figure 1. Comparison of the survival curve between group A and B90 by operational definition for mortality

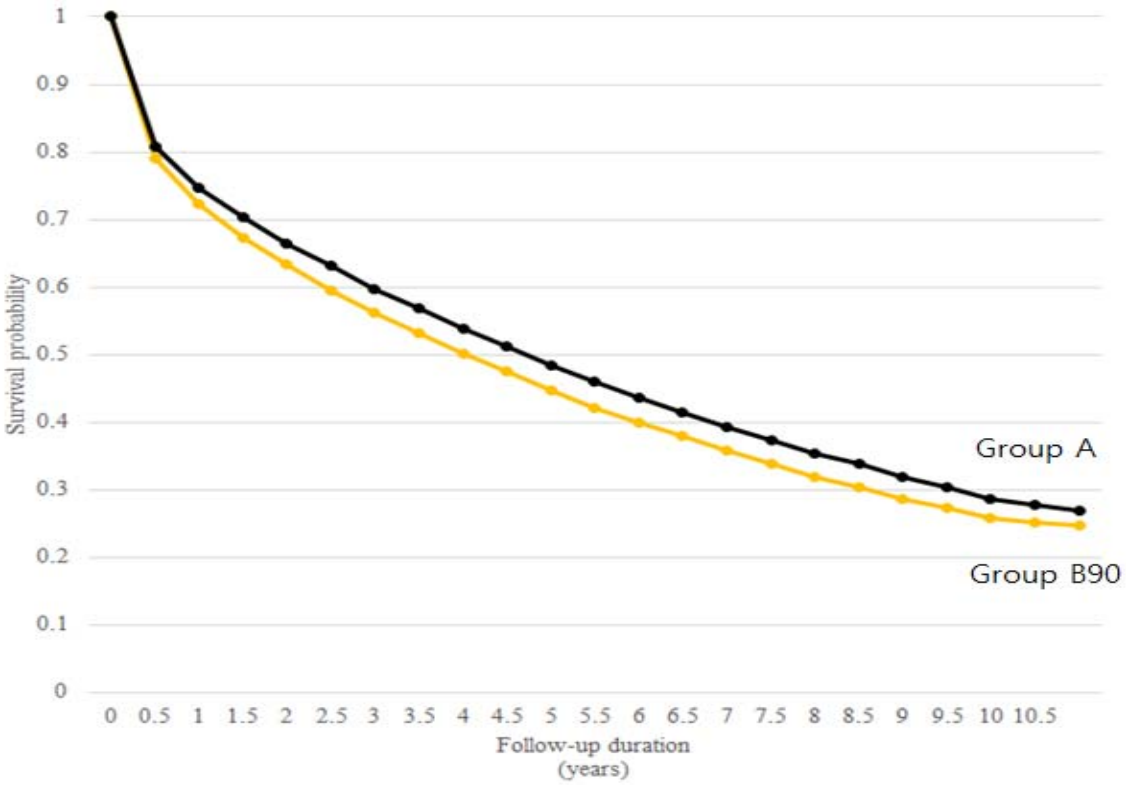

Figure 2. Comparison of the survival curve between group A and B180 by operational definition for mortality