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**Diagnostic Patterns Associated with Intensive Care Unit Acquired Acute
Kidney Injury: A Comprehensive Analysis and Phenome-Wide Association
Study**

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Objectives : Acute kidney injury (AKI) in the critically ill patients imposes a huge burden in healthcare systems. This study aims to examine the association between AKI and various diagnoses with a phenome-wide approach.

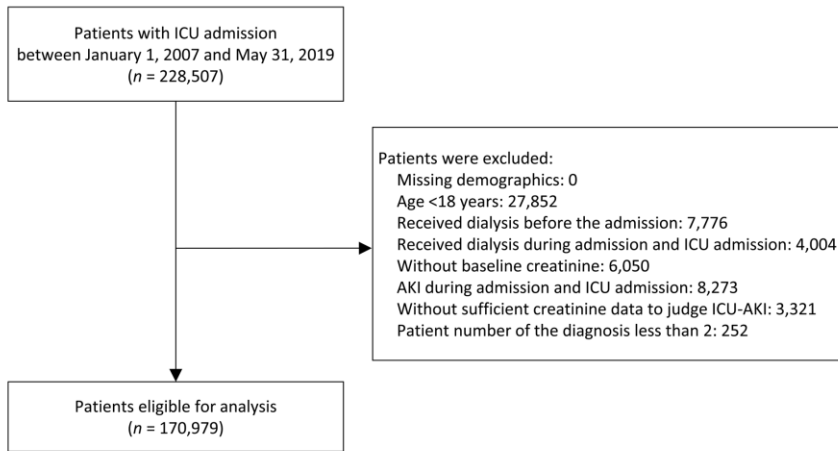
Methods : Using the multi-institutional database, we included adult patients admitted to the intensive care unit (ICU) between 2007 and 2019. To investigate diagnostic patterns of ICU-acquired AKI, we tested the association between AKI and designated International Classification of Diseases, Tenth Revision (ICD-10) codes. We performed a hierarchical cluster analysis to identify how AKI-associated diagnoses present concurrently.

Results : In this ICU population, the diagnoses associated with respiratory failure, sepsis, and shock were strongly related to ICU-acquired AKI. Eight clusters of diagnoses identified through the ICD-10 codes were closely linked to sepsis, respiratory failure, fungal infection, hematologic malignancy, surgical or postprocedural complications, and cardiac and liver diseases. ICD-10 code N17 for AKI had a sensitivity of only 18.4% for AKI of any severity but had a specificity of 97.3%.

Conclusions : This study identified diagnostic clusters associated with ICU-acquired AKI representing several different ICU populations. The low sensitivity of ICD-10 code N17 among patients with a creatinine-based AKI diagnosis during their ICU stay indicates under-coding of AKI.

Figure1.png

a



b

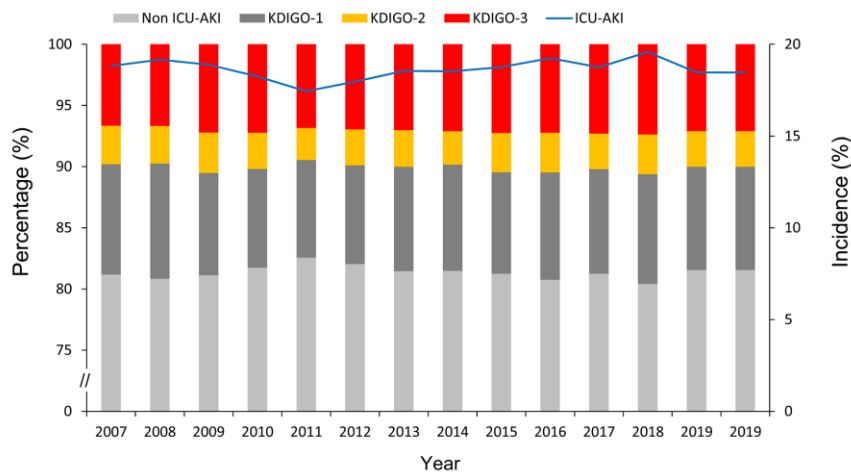


Figure1.png

