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Changing epidemiologic trends of critically ill patients with acute kidney injury: population-based cohort study in Korea between 2008 and 2015

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Objectives:

The increase in the elderly population with more comorbidities and advances in critical care is likely to increase the incidence of acute kidney injury (AKI). However, reports of mortality rate change over time in patients with AKI are lacking. Our aim was to evaluate the trends of incidence and mortality of AKI among critically ill patients in Korea.

Methods:

Using the national Health Insurance Review and Assessment database, all adult admissions to intensive care units (ICU) in Korea from 2008 to 2015 were identified and included. The incidence of AKI and the associated mortality rate were calculated. Temporal trends in annual AKI rates were also assessed. Hospital mortality, ICU and hospital lengths of stay, and total cost were also evaluated.

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Results:

A total of 1,767,990 patients were identified. The incidence of AKI increased from 7.6% in 2008 to 8.8% in 2015 (p for trend <.001). The age-standardized AKI admission rate was 37.4 per 100,000 person-years. In-hospital mortality decreased from 39.1% in 2008 to 37.2% in 2015 (p for trend <.001) with 14.2 deaths per 100,000 person-years. Patients with AKI showed higher risk of in-hospital mortality, longer hospital length of stay, and higher medical costs compared to patients without AKI. The multivariable adjusted odds ratio (OR) of AKI for death was 5.81 (5.73-5.89). Mechanical ventilation (OR=4.2; 4.15-4.26), ECMO (OR=17.93; 16.8-19.14), and use of vasopressor drug (OR=4.02; 3.96-4.08) were also associated with higher risk of death.

Conclusions:

Despite the increasing incidence of AKI in critically ill patients in Korea, in-hospital mortality associated with AKI has significant decreased over the past 9 years.