



Diuretics for All?

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Cite this article as: Alp A. Diuretics for All? Turk J Anaesthesiol Reanim 2017; 45: 323

In intensive care units (ICUs), acute kidney injury (AKI) is the one of the most common debates with respect to nephrology, with its possible incidence being up to 60%–70% and the requirement for renal replacement therapy being approximately 5%–6%. There are many reported aetiological entities for AKI in ICUs, however the clinical importance of AKI is the high mortality and morbidity risk. The conventional use of loop diuretics, particularly furosemide, is very frequent in ICUs; however, the clinical outcomes remain to be clarified.

The haemodynamic status of patients in the ICUs is usually labile. Sepsis, hypovolemia, and nephrotoxic agents are very often responsible for AKI. Pre-renal reasons are the leading aetiologies for AKI, which is constant with a low glomerular filtration pressure and low renal blood flow. Renal hypoperfusion causes AKI, which may present itself with oliguria or anuria. Unfortunately, loop diuretics are accepted as 'urine producers' among physicians in ICUs and are often used. Therefore, under such conditions, the unnecessary use of loop diuretics may worsen renal blood flow contributing to AKI and worsen the clinical prognosis. The prevention of AKI, although experimental studies favoured diuretic use, clinical studies remain controversial. Zhang et al. (1) revealed that although furosemide use increased the urinary output in patients in ICUs (n=21, 207), mortality was also higher in these patients. Both septic shock/sepsis and furosemide use increased the risk for AKI in critically ill patients (2). An increased diuretic use appeared to be associated with a higher incidence of hypernatraemia in ICUs, and subsequently, a higher mortality risk (3). Concomitant use of diuretics with other potential nephrotoxic agents such as ARBs/ACE inhibitors/NSAII is well defined in the literature, which increases the risk for AKI (4). In a placebo-controlled study, despite the increase in urinary output, the recovery of AKI did not improve in the diuretic-receiving group and even resulted in worse outcomes (5). Silbert et al. (6) recently emphasised the changes in pharmacokinetics of furosemide in AKI, which may partly explain its disadvantages.

Diuretic use (particularly loop diuretics) is becoming a usual practice in ICUs. However, this should not be independent from the haemodynamic status of the patient. As mentioned in the KDIGO guidelines for AKI, except for hypervolemia, diuretics should not be routinely used and a physiological/clinical approach should be preferred. A detailed work-up of the aetiology and volemic status of AKI is necessary before initiating treatment with diuretics in ICUs.

References

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