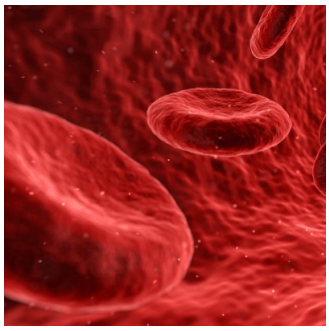
ICU
MANAGEMENT & PRACTICE

Vasopressin reduces septic shock deaths but...



A Chinese research team performed a meta-analysis and trial sequential analysis of randomised controlled trials (RCTs) evaluating the effects of vasopressin receptor agonists in septic shock patients. Their findings show the use of vasopressin might result in reduced mortality in these patients, but an increased risk of digital ischaemia must be taken into account.

Septic shock is the leading cause of death in intensive care units. Maintaining effective blood pressure is important for these patients, with catecholamines, such as norepinephrine (NE), being the first-line drugs. Several clinical studies have reported early concomitant vasopressin, and norepinephrine therapy could reduce the dose of NE, shorten the time of achieving target mean arterial pressure (MAP), and reduce catecholamine-related complications. Therefore, the newest Surviving Sepsis guideline suggests vasopressin could be used to raise blood pressure to target MAP or decrease norepinephrine dosage with weak recommendations.

However, no consensus has been made regarding the effects of vasopressin receptor agonists on patient-centred outcomes, especially mortality. The aim of this meta-analysis was to evaluate the effects and safety of vasopressin receptor agonists in patients with septic shock. PubMed, EMBASE, and Cochrane library were searched for the relevant RCTs. Two reviewers performed literature selection, data extraction, and quality evaluation independently. The primary outcome was mortality, while secondary outcomes included ICU length of stay, duration of mechanical ventilation, and incidence of adverse events. In addition, a trial sequential analysis (TSA) was performed.

The review team included 22 studies for their analyses. The results showed vasopressin receptor agonist use was associated with reduced mortality (relative risk (RR) 0.92; 95% confidence interval (CI) 0.84 to 0.99; I2 = 0%). Nevertheless, they had no significant effects on ICU length of stay (mean deviation (MD) – 0.08, 95% CI, – 0.68 to 0.52, I2 = 0%) and duration of mechanical ventilation (MD – 0.58, 95% CI – 1.47 to 0.31, I2 = 57%). Additionally, there was no significant difference in total adverse events between the two groups (RR 1.28, 95% CI 0.87 to 1.90, I2 = 57%), but vasopressin administration could significantly increase the risk of digital ischaemia (RR 4.85, 95% CI 2.81 to 8.39, I2 = 26%).

The reviewers also found no statistical difference of cardiovascular events, arrhythmia, mesenteric ischaemia, diarrhoea, cerebrovascular events, and hyponatraemia between the two groups. Egger's test showed there was no significant publication bias among studies (P = 0.36).

In most published studies, as noted by the review team, patients in the intervention group received both vasopressin and open-label catecholamines, and this may prejudice the outcome. Therefore, more head-to-head comparative randomised evidence is required.

The Vasopressin in Septic Shock Trial (VASST) found the survival advantage of concomitant vasopressin and norepinephrine therapy was obvious in patients with less severe shock. In another study, lactate concentration was reported to be associated with the haemodynamic response of vasopressin. Hence, further research is needed to determine which specific subgroups of septic patients are most likely to respond to early initiation of vasopressin, the reviewers add.

Source: Critical Care

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