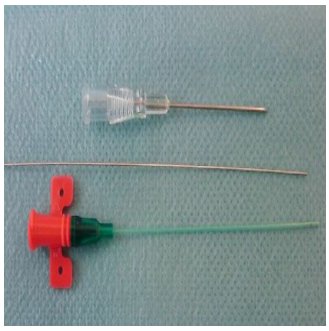
ICU
MANAGEMENT & PRACTICE

Arterial Catheter Use in ICU Does Not Improve Mortality



A retrospective cohort study has shown that the use of arterial catheters (ACs) is not associated with improvements in hospital mortality in intensive care unit ICU patients requiring mechanical ventilation. The finding is published online in *JAMA*.

ACs are used in 40 percent of ICU patients, mostly to facilitate diagnostic phlebotomy, collect arterial blood gases, and improve haemodynamic monitoring. Using ACs can involve risks, such as limb ischemia, pseudoaneurysms and infections. Despite known risks as well as costs necessary for insertion and maintenance, data regarding the impact of ACs on clinical outcomes are limited.

This study investigated all adult ICU admissions of U.S. hospitals participating in Project IMPACT from 2001 to 2008. A total of 139 ICUs in the US were included. Participants were ICU patients 18 years or older.

The primary cohort (group) included medical patients requiring mechanical ventilation. Nine secondary cohorts were examined for generalisability, which included patients requiring vasopressors. The primary outcome analysed was hospital mortality; secondary outcomes included days requiring vasopressors, days of mechanical ventilation and ICU length of stay. Additionally, rate of low-volume (<2 units) packed red blood cell (pRBC) transfusions was analysed to evaluate potential morbidity of AC use as a result of increased phlebotomy, researchers said.

Of 60,975 medical patients who required mechanical ventilation, 24,126 (39.6 percent) patients had an AC. Propensity score matching yielded 13,603 pairs of patients who did not have an AC with patients who did have an AC, the researchers pointed out. Patients in the AC group were slightly older and also were more likely to be on Medicare.

The researchers reported these key findings:

- No association was found between AC use and hospital mortality (OR 0.98, 95% CI 0.93-1.03).
- There was an increase in number of days requiring vasopressors, duration of mechanical ventilation and ICU length of stay for patients who received ACs.
- In patients using vasopressors, AC use was associated with an eight percent increase in the odds of mortality (OR 1.08, 95% CI 1.02-1.14, p=0.008).
- Also, no association was found between pRBC transfusions and AC use (rate ratio 0.99, 95% CI 0.82-1.19, p=0.91).

According to the researchers, ACs used in mechanically ventilated patients in the ICU are not associated with lower mortality and should therefore be used with caution, weighing the risks and benefits, until more studies are performed.

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