

Hemodynamic effects of parenteral vs. enteral paracetamol in critically ill patients

Paracetamol is a well-established analgesic and antipyretic agent in both the community and hospital setting. Three different formulations are available; oral/enteral, per-rectal and more recently a parenteral form. Paracetamol is a commonly used drug in the intensive care unit and generally safe at recommended doses but there have been reports in the literature of an association with significant hypotension a potentially important interaction for labile critically ill patients. Route of administration may influence the incidence of hypotension.

This study finds that there is increase in incidence of hypotension following parenteral paracetamol administration compared with enteral paracetamol in ICU patients.

In this single-center, prospective, randomized, open-label, parallel-arm, active control trial in a tertiary referral, university-affiliated ICU between December 2009 and March 2011.

They enrolled 50 patients and assigned to receive either parenteral (n=25), or enteral (n=25), these patients include adult patients (≥ 18 years) whose lungs were mechanically ventilated, and who had been prescribed paracetamol either for fever or pain. Patients were assigned to receive 1 g of either parenteral or enteral paracetamol 6-hourly for 24 h. Parenteral paracetamol (Perfalgem®) was infused over 15 min, the tablet formulation (Febridol®) was crushed and administered as a suspension via the nasogastric route. During the 24 h following the administration of the first paracetamol dose, they recorded physiological data (temperature, HR, BP, CVP, and SpO₂) at set time points. They defined a hypotensive event as a decrease in systolic blood pressure (SBP) from baseline SBP of $\geq 20\%$ for ≥ 15 min, or for ≥ 5 min if the SBP was ≤ 90 mmHg within 60 min of receiving the study drug.

The study reveals that 197 parenteral or enteral doses of paracetamol administered, 16 hypotensive events occurred in 12 patients who take parenteral (75%), and 4 patients who take enteral (25%). The incident rate ratio for parenteral vs. enteral paracetamol was 2.94 (95% CI 0.97–8.92; p = 0.06)

In conclusion the incidence of hypotension associated with paracetamol administration is higher than previously reported by the manufacturers and tends to be more frequent with parenteral paracetamol. The results have important implications for daily clinical practice and the management of pain and fever in the critically ill.

References:

KellySJ, MoranJL, WilliamsPJ,etal.Haemodynamic effects of parenteral vs. enteral paracetamol in critically ill patients: a randomised controlled trial. *Anaesthesia*. 2016 Oct;71(10):1153-62. doi: 10.1111/anae.13562.

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