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A novel risk of air embolism with intravenous paracetamol

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DESCRIPTION

Air embolism following the administration of intravenous paracetamol is a risk because it is stored in a rigid container, and therefore requires an air inlet to allow infusion.¹ At the end of the infusion, if the giving-set is not clamped, air may be entrained, particularly into a central vein. Venous air embolism of a volume of 5 ml/kg may cause cardiac arrest, but considerably smaller volumes (2 or 3 ml) have been associated with complications in coronary and cerebral circulations.² We present a 'near-miss' in an orthopaedic theatre, with a patient undergoing an elective hip-replacement. Intravenous paracetamol was given intraoperatively via a peripheral vein, but the air inlet/needle was positioned too close to the aperture of the giving-set, creating a direct communication between the two. This allowed air to pass directly from the air inlet into the giving set without the infusion progressing. The fluid level in the rigid container did not decrease but air was still entrained into the giving set, which was only noticed when the giving set was almost full of air, although none had reached the patient. While the Summary of Product Characteristics for Perfalgan intra-venous paracetamol³

mentions the need for close monitoring of the infusion, this focuses on the end of an infusion. In the above scenario, the infusion may not seemingly progress at all, but large volumes of air may be entrained as soon as the giving set is unclamped. Careful assembly and close monitoring throughout the infusion is vital to avoid a potentially fatal complication (figure 1).

Learning points

- ▶ Rigid or semirigid containers present a risk of air embolism as an air inlet must be introduced to allow infusion.
- ▶ Agents commonly stored in such containers include paracetamol, metronidazole, ciprofloxacin, propofol, sodium bicarbonate, or phosphate solutions as well as certain preparations of colloids and crystalloids.
- ▶ A direct connection of air between the inlet and the giving set can bypass the infusion chamber and cause an air embolism before the infusion has even started.

Figure 1 An air bubble is clearly visible passing directly from the air inlet needle to the giving set.

Competing interests None.

Patient consent Not obtained.

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