Peripheral Vasopressor Administration in Critically Ill Children with Shock

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BACKGROUND
• To reduce the risk of tissue injury from drug extravasation, vasopressors (VP) are typically infused via a central venous catheter (CVC).
• Placement of a CVC can delay administration of life-sustaining medication and can result in complications.
• Recent adult data suggests that peripheral administration of life-sustaining medication may be safe. Evidence in children is less robust.

OBJECTIVES
• To characterize our experience and complication rates with peripheral VP administration.

METHODS
• Retrospective study
• Patients were categorized into two groups:
  (1) peripheral VP (PVP) if they received > 1 hour VP support through a peripheral IV or
  (2) central VP (CVP) if they received VP only via a CVC.
• Groups were compared using Wilcoxon rank sum tests for continuous variables and Fisher’s exact test or Pearson’s chi-square tests for categorical data.

RESULTS
• Children in the PVP group were older, had lower illness severity, and had VP therapy initiated at night more often than those in the CVP group.
• PVP patients who went on to receive a central line had higher severity of illness, lower weight, were more frequently mechanically ventilated, had longer PICU stays, and higher mortality.
• Extravasations occurred in 4 patients and were all associated with PIVs inserted in the hand.

LIMITATIONS
• There were a pharmacologic antidote administered.
• None resulted in long-term disabilities.

CONCLUSIONS
• Short-term administration of VP therapy via a peripheral line is associated with a low incidence of complications.
• Peripheral VP therapy can offer providers an option for drug delivery while evaluating the need for a CVC.

FUTURE DIRECTIONS
• Evaluation of the safety of peripheral vasopressors and outcomes in critically ill children in a prospective manner.