Injection of Fluid Through into the Epidural Space Prior to Epidural Catheter Insertion: A Meta-Analysis

Abstract Type: Meta Analysis/Review of the Literature

Jamie D. Murphy, M.D.; Brandon M. Togioka, M.D.; Sarah Wyhs, M.D.; Gillian R. Isaac, M.D., Ph.D.; Christopher L. Wu, M.D.
The Johns Hopkins University and School of Medicine

Background: Fluid is commonly injected into the epidural space following identification of the epidural space as some clinicians believe that expansion of the epidural space may result in fewer complications (e.g., accidental vascular catheter insertion, paresthesias) or greater ease in epidural catheter insertion. However, the overall efficacy of fluid injection into the epidural space following identification of the epidural space is unclear. We have performed a meta-analysis to further examine this issue.

Methods: Systematic literature searches of PubMed and EMBASE databases were conducted using terms related to local anesthetic, saline, and epidural. Only randomized controlled trials comparing injection of fluid (i.e., saline or local anesthetic) to no injection into the epidural space after identification of the epidural space were included for analysis. Meta-analysis was performed using the Review Manager 4.2.10.

Results: 5 articles met all inclusion criteria. There were a total of 528 subjects for the fluid group and 420 for the no fluid group. We found fluid injection into the epidural space (vs. no fluid injection) was associated with a reduced risk of venous cannulation (RR = 0.54, 95% CI: 0.35, 0.84; p = 0.0006) but there was no difference between the groups with regard to transient paresthesias (RR = 0.84, 95% CI: 0.40, 1.74; p = 0.63) or ease of epidural catheter placement (RR = 0.97, 95% CI: 0.90, 1.05; p = 0.50).

Conclusions: Injection of fluid into the epidural space following identification of the epidural space may result in a lower risk of venous cannulation but without a decrease in transient paresthesias or improved ease of catheter placement. Further examination with larger RCT is warranted as the overall number of subjects is relatively small.

Rolbin SH et al. Fluid through the epidural needle does not reduce complications of epidural catheter insertion. Can J...