Influence of Tunnelling on the Thoracic Epidural Catheter-related Infection Rate

Primary Author: Paul Kessler MD, PhD
Orthopedic University Hospital Frankfurt

Co-Authors: Hagen Bomberg, MD; Thomas Volk, MD, PhD;

Objective: Catheter-related infections are a serious complication of continuous thoracic epidural analgesia. Tunnelling catheters subcutaneously may reduce infection risk (1, 2, 3). We thus tested the hypothesis that tunnelling of thoracic epidural catheters is associated with a lower risk of catheter-related infections.

Methods: Twenty-two thousand, four hundred and eleven surgical patients with continuous thoracic epidural analgesia included in the German Network for Regional Anaesthesia registry between 2007 and 2014 were grouped by whether their catheters were tunnelled (n=12 870) or not (n=9541). Catheter-related infections in each group were compared with Student’s unpaired t and χ² tests. Odds ratios (ORs) and 95% confidence intervals (CIs) were calculated with logistic regression, adjusting for potential confounding factors, including age, ASA physical status score, use of catheter for ≥4 days, multiple skin puncture, hospital, and surgical department.

Results: There were fewer catheter-related infections in patients with tunnelled catheters (4.5 vs 5.5%, P<0.001). Mild infections were also less common (4.0 vs 4.6%, P=0.009), as were moderate infections (0.4 vs 0.8%, P<0.001). After adjustment for potential confounding factors, tunnelling remained an independent prevention for any grade of infection (adjusted OR 0.51, 95%CI 0.42–0.61, P<0.001) and for mild infections (adjusted OR 0.54, 95% CI 0.43–0.66, P<0.001) and moderate and severe infections (adjusted OR 0.44, 95% CI 0.28–0.70, P=0.001).

Conclusion: Tunnelling was associated with a lower risk of thoracic epidural catheter-related infections.