Predictors of urinary retention in patients undergoing open renal surgery with thoracic epidurally analgesia: A pooled analysis

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Hypothesis / aims of the study:

Thoracic epidural analgesia (TEA) has been shown to inhibit detrusor activity in patients undergoing open renal surgery, resulting in relevant postvoid residuals independent of the epidural drug mixture used [1-3]. The aim of this study was to determine the risk factors for postoperative urinary retention.

Study design, material and methods:

The present study is a pooled analysis of two open observational studies and a double-blind randomized trial including 66 patients, requiring open renal surgery and perioperative use of a TEA with a segmental blockade from the thoracic dermatomes T4 to T11. All patients underwent urodynamic investigations before TEA and during TEA 2-3 days after open kidney surgery by lumbotomy. Multiple logistic regressions analysis was used to determine predictors for urinary retention during TEA.

Results & Discussion:

Postoperative PVR ≥100ml during TEA was present in 48/66 patients (73%). Preoperative predictors for PVR ≥100ml postoperatively during TEA were gender (female vs male) (OR: 0.962 [0.93-0.99]; P=0.049) and preoperative PVR (OR: 0.972 [0.85-0.99]; P=0.027).

Postoperative urinary retention (flow rate of 0ml/s) during TEA was present in 21/66 patients (32%). Predictors for postoperative urinary retention during TEA were PdetQmax before TEA (OR: 0.962 [0.93-1.00]; P=0.049) and Qmax (OR: 1.101 [0.99-1.22]; P=0.070).

Postoperative maximum flow rate (Qmax) lower than 4ml/s was present in 32/66 patients (49%). The infusion rate of epidural mixture administered predicted a postoperative Qmax <4ml/s (rate ≥10ml/h vs ≤5ml/h: OR 14.672 [95% CI 1.97-109.2]; P=0.009).

Interpretation of the results:

TEA results in clinically relevant voiding dysfunction including a relevant incidence of urinary retention after open renal surgery. Preoperative urodynamic parameters may predict postoperative voiding dysfunction.

Concluding message:

TEA has an impact on voiding function. Preoperative voiding symptoms may predict clinically significant postoperative PVR’s and the necessity for catheterization during TEA.

References: