

INTRAOPERATIVE INDWELLING CATHETERIZATION IS NECESSARY FOR SUCCESSFUL TRIAL WITHOUT CATHETER IN PATIENTS WITH POSTOPERATIVE URINARY RETENTION AFTER NON-UROLOGICAL SURGERY

Hypothesis / aims of study

Up to date, there has been a scarcity of reports on factors influencing on recovery from postoperative urinary retention (POUR) after non-urological surgery. The aim of this study was to investigate whether the presence or absence of intraoperative indwelling catheterization could influence the outcome of trial without catheter (TWOC) for POUR after non-urological surgery.

Study design, materials and methods

Of 12905 patients referred to the department of urology for urologic problems, 790 patients complained of micturition difficulty after non-urological surgery. After excluding patients with previous neurological disease, previous urological surgery, and urological disease such as urethral stricture, bladder or prostatic cancer and benign prostatic hyperplasia, and in-and-out catheterization for POUR, a total of 312 patients with post-void residual urine volume (PVR) of ≥ 500 ml measured by indwelling catheterization were included in this study. All eligible patients underwent indwelling catheterization as an initial treatment for POUR and then TWOC was performed 3 to 7 days later, according to the preference of the individual clinicians. POUR was defined as micturition difficulty with PVR of ≥ 500 ml after non-urological surgery. Successful TWOC was defined as voiding with PVR < 100 ml. All eligible patients were categorized into two groups: group 1 (208 patients in whom intraoperative indwelling catheterization was performed during non-urological surgery) and group 2 (104 patients in whom intraoperative indwelling catheterization was not performed during non-urological surgery). A retrospective review was performed to evaluate patient demographics and clinical, surgical and anesthetic factors which were compared between the two groups. Predictive factors of successful TWOC were identified by multivariate regression analysis. All definitions corresponded to recommendations of the International Continence Society

Results

Mean age of the patients in the groups 1 and 2 was 65.1 ± 13.1 years and 65.2 ± 16.1 years, respectively. There were significant differences in the average amount of intravenous fluid administered during the surgery and mean duration of surgery between the two groups (1429.7 vs. 838.5 ml and 154.9 vs. 91.5 min). There were no differences in the other baseline parameters between the two. Mean duration of indwelling catheterization for POUR was 5.0 (range 3.0 to 7.0) days and 256 (82.1%) patients received medication with an alpha-blocker. A successful TWOC in the groups 1 and 2 was observed in 192 (92.3%) and 68 (65.4%) patients. Five of 16 patients with failure of TWOC in group 1 and 12 of 36 patients with failure of TWOC in group 2 underwent urodynamic investigation. Normal detrusor function, detrusor underactivity and acontractile detrusor in the groups 1 and 2 were observed in 1, 2 and 2 patients, and 2, 6 and 4 patients, respectively. On univariate logistic analysis, younger age, female gender, non-spinal surgery, supine position during surgery and the presence of intraoperative indwelling catheterization were significantly associated with successful TWOC. On multivariate analysis, the presence of intraoperative indwelling catheterization was the only independent predictor of successful TWOC for POUR. Mild catheter-related complications such as gross hematuria and urethral discomfort were comparable the two groups. No patient had serious catheter-related complications such as sepsis. Ten of 16 patients (group 1) with failure of TWOC and 20 of 36 patients (group 2) with failure of TWOC who were discharged from the hospital with indwelling catheters underwent a second TWOC at 1 to 2 weeks after discharge from the hospital. The second TWOC in the groups 1 and 2 was successful in 6 (60%) and 6 (30%) patients with the indwelling catheter, respectively.

Interpretation of results

Even a single episode of bladder over-distention may lead to the deposition of collagen between the muscle fibers of the detrusor, decreasing the contractility and leading to impairment of bladder emptying [1]. Furthermore, bladder ischemia may contribute to the persistent impairment of contractility after bladder over-distention [2]. Thus, avoidance of excessive bladder distention by indwelling catheterization during surgery might be important for recovery of micturition from POUR in patients with a retention volume over 500 ml. This can be further supported by the experimental observation of a reduced bladder response to sacral neural stimulation during over-distention and after over-distention [3].

Concluding message

The present study indicates that intraoperative indwelling catheterization during surgery can be needed to avoid excessive bladder distention and persistent micturition difficulty.

References

1. Hinman F. Editorial: postoperative over-distention of the bladder. *Surg Gynecol Obstet* 1976;142:901-2.
2. Kitada S, Wein AJ, Kato K, Levin RM. Effect of acute complete obstruction on the rabbit urinary bladder. *J Urol* 1989;141:166-9.
3. Bross S, Schumacher S, Scheepe JR, Zendler S, Braun PM, Alken P et al: Effects of acute urinary bladder overdistention on bladder response during sacral neurostimulation. *Eur Urol* 1999;36:354-9.

Disclosures

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