

Should Urinary Catheter Be Retained Preoperatively in Osteosynthesis of Pertochanteric Fractures? A Prospective Randomized Clinical Trial*Direk Tantigate, MD; Thippatai Chaichompo, MD; Yuwarat Monteerarat, MD;**Theerawoot Tharmviboonsri, MD; Kongkhet Riansuwan, MD**Department of Orthopedic Surgery Faculty of Medicine, Siriraj Hospital Mahidol University Bangkok, Bangkok, Thailand*

Purpose: This study was undertaken to compare rates of urinary tract infection (UTI) and perioperative urinary retention (POUR) in patients undergoing osteosynthesis of pertochanteric fracture with and without preoperatively retaining urinary catheter.

Methods: 105 patients who sustained pertochanteric fracture and scheduled for osteosynthesis from December 2017 to January 2019 were enrolled. 92 patients were included and randomly allocated into 2 groups. Group 1 was patients who preoperatively did not retain urinary catheter and Group 2 was patients who preoperatively indwelled urinary catheter and removed at 48 hours postoperatively. Urinalysis (UA) was collected on day of admission, day of surgery, 48 hours postoperatively, and 72 hours after urinary catheter removal or day of discharge. Pyuria was diagnosed when positive white blood cell (WBC) $>3-5$ cells /HPF (high-powered field) in UA and urine culture was subsequently obtained in case of pyuria. Complications including UTI, sepsis, and POUR, which was the inability to void in the presence of full bladder or residual urine by intermittent catheterization more than 300 mL, were collected. Patient demographics, rate of pyuria, and POUR were compared between 2 groups. Patients who were indicated for perioperative urine monitoring including unstable hemodynamic status, sepsis, and need for postoperative ICU admission were retained urinary catheter. Intention to treat and per protocol analysis was employed.

Results: The average age of patients was 81 ± 7.6 years. 65 patients (70.6%) were female. 83 patients (90.2%) were treated by closed reduction and internal fixation (CRIF) with cephalomedullary nail and 8 patients (9.8%) were treated by CRIF with dynamic hip screw. 65 patients (70.6%) underwent spinal anesthesia. There was no statistically significant difference in age, gender, body mass index (BMI), time to surgery, method of anesthesia, type of surgery, operative time, blood loss, and length of stay between 2 groups. There was a statistically significant difference in overall rate of pyuria, which was 71.7% in group 1 and 89.1% in group 2 ($P = 0.036$) and only urinalysis at day of surgery was demonstrated statistically significant in rate of pyuria, which was 21.7% and 45.7%, respectively ($P = 0.019$). However, per protocol analysis did not demonstrate significant different in positive urine culture between patients with and without retaining urinary catheter, which was 21.6% in group 1 and 32.7% in group 2 ($P = 0.246$). POUR was significantly higher in group 1, which was 30.4% preoperatively and 21.7% postoperatively.

Conclusion: Preoperative retaining urinary catheter in patients who sustained pertochanteric fracture can prevent perioperative urinary retention. On the other hand, it may increase the rate of asymptomatic pyuria but not UTI.