
Percutaneous Nephrolithotomy in Prone and Supine Positions: A Randomized Controlled Study

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OBJECTIVES	To evaluate the safety, efficacy, adverse events, and feasibility of ultrasound guided percutaneous nephrolithotomy (US-PCNL) in the management of large renal stones in supine and prone positions and to point out the practical considerations related to these techniques in comparison with standard PCNL.
PATIENTS AND METHODS	This study was conducted between August 2013 to September 2018 as a prospective randomized and controlled study. A total of 392 consecutive patients with nephrolithiasis >2 cm were randomly assigned to undergo ultrasound PCNL in prone (P-US-PCNL) (132 patients); supine position (S-US-PCNL) (129 patients) or conventional PCNL (C-PCNL) (131 patients). The preoperative parameters, the intraoperative findings, operative time, hospital stay, perioperative morbidities, stone free rate, and related data were recorded.
RESULTS	The demographic and the baseline characteristics were comparable in all study groups. The mean number of trails and time for successful puncture in P-US-PCNL, S-US-PCNL, and C-PCNL were 1.9 ± 1 , 2.3 ± 1.2 , and 1.7 ± 1 , respectively ($P < .001$), and 15.8 ± 5.8 , 19.3 ± 9.4 , and 16.5 ± 8.1 seconds, respectively ($P < .001$). The operation time was 69 ± 22 , 75 ± 23 , and 72 ± 27 minutes, respectively, ($P > .05$). The mean nephrostomy time and length of hospital stay were 3 ± 1.3 , 3.4 ± 1.5 , 3.2 ± 1.2 hours, respectively, and 3.8 ± 1.5 , 4.1 ± 1.5 , 3.9 ± 1.3 days, respectively ($P > .05$). The mean percentage decrease in hemoglobin concentration was 1.65 ± 0.66 , 1.77 ± 0.78 , and 2.1 ± 0.9 , respectively ($P < .001$), overall stone clearance was 88%, 79%, and 85%, respectively ($P > .05$). Complications were acceptable and similar between groups.
CONCLUSION	US-PCNL either in prone or supine position is as effective, feasible, and safe as C-PCNL with zero radiation exposure. UROLOGY 128: 31–37, 2019. © 2019 Elsevier Inc.

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