Paper 2

One-Shot Dilatation vs Metal Dilator During Percutaneous Nephrolithotomy in Flank-Free Supine Position: A Randomized Controlled Study

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Abstract

Background: The creation and dilatation of the nephrostomy tract is a fundamental step in percutaneous nephrolithotomy (PCNL). In one-shot dilatation (OSD), we used a single Amplatz dilator over a central Alken rod. PCNL in the supine position is as effective and safe as in the prone position. The Barts flank-free modified supine position sums several advantages of the different supine positions. We evaluated the efficacy and safety of OSD compared with metal telescopic dilator (MTD) during PCNL while the patient was in Barts flank-free modified supine position.

Materials and Methods: Within 2.5 years, 150 patients with kidney stone candidates for PCNL were randomized into two equal groups according to the dilatation technique. In the OSD group, dilatation was performed using a single Amplatz dilator (30F) and in the MTD group dilatation was performed by sequential MTD (9–30F). All PCNL procedures were done with patients in Barts flank-free modified supine position. Patient characteristics, operative data, and results were collected for statistical analysis.

Results: There are no statistically significant differences between both groups regarding patients' characters. The tracts were effectively dilated in all patients. Statistical analyses show a significant difference ($p < 0.05$) between both groups regarding the time of dilatation (seconds; 68 – 15 vs 147 – 18), time of X-ray exposure (seconds; during dilatation; 36 – 10 vs 61 – 15 and the total; 157 – 16 vs 181 – 20), hemoglobin loss (mg/dL; 0.7 – 0.2 vs 1.2 – 0.3), and hospital stay (days; 3 – 0.6 vs 3.7 – 0.7) with favorable results to OSD. Complication rates were comparable between the two groups.

Conclusions: OSD is efficient as MTD during PCNL while patients are in Barts flank-free modified supine position, with less dilatation time, X-ray exposure, blood loss, and hospital stay than MTD.

Keywords: PCNL, supine PCNL, one-shot dilatation, tract dilatation, Barts position

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