

PP-035

Comparative efficacy and safety of conventional and hand-held intra-corporeal pneumatic lithotripsy in the treatment of ureteric stones

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Introduction: Ureteric stones are treated by various methods. Ureteroscopy with intra corporeal pneumatic lithotripsy is one of the modalities. The objective of our study was to compare the efficacy and safety of conventional and Hand-held intra-corporeal pneumatic lithotripters in the treatment of ureteric stone. The study was conducted at the Department of Urology, Institute of Kidney Diseases Hayatabad Peshawar, from 1st Oct 2010 to 1st Oct 2011.

Methods: 100 adult patients with ureteric calculi ≥ 0.7 cm were evaluated. All patients underwent ureteroscopy with intracorporeal lithotripsy using two different pneumatic lithotripters (LMA-Stone Breaker "Group A" and Swiss Lithoclast "Group B"). Follow up was done. The parameters assessed were: site of stone, size, laterality, degree of fragmentation, clearance rate and complications.

Results: Both groups were comparable. Mean stone size was 16.8 ± 0.62 mm in Group A and 18.0 ± 0.69 mm in Group B. In Group A stone clearance was 96% (48/50) while it was 92% (46/50) in Group B. Group A lithoclast was able to break 49/50 stones while Group B could break 44/50 stones. Group A lithoclast was able to break 46/50 stones into fragments ≤ 4 mm while Group B could break 40/50 stones into such fragments. Proximal migration occurred in 1 case in Group A while in 6 cases in Group B. 4 and 1 stone in Group A and B, respectively, required ESWL and 2 stones in Group B required open ureterolithotomy as auxiliary procedure. There were 2 perforations in Group "B". Intra operative bleed, post-operative pain and hematuria were more common in Group "B" while fever was more common in Group "A".

Conclusions: Hand-Held pneumatic lithoclast is more efficient and safe as compared to conventional pneumatic Lithoclast in the treatment of ureteric stones. However, more structured research, such as Randomized Control Trials, should be conducted to clarify the picture.