

PP-061

A prospective randomized comparison between early (< 48 hours of onset of colicky pain) versus delayed shock wave lithotripsy for symptomatic upper ureteric calculi: A single center experience

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Aims and Objectives: The role of early/emergency shock wave lithotripsy in symptomatic upper ureteric calculi has still not been established. We have performed a prospective randomized comparison between early (< 48 hours) versus delayed (> 48 hours) shock wave lithotripsy for symptomatic upper ureteric stones less than 1 cm to evaluate the feasibility, safety and efficacy of early SWL in these patients.

Materials and Methods: 160 consecutive patients with a single radio-opaque upper ureteric stone < 1 cm, presenting with an episode of colicky pain, undergoing treatment between July 2008 and June 2009 in our department were included. The patients were hospitalized and randomized into 2 groups – Group A: SWL was performed within 48 hours of onset of colicky pain (early SWL) using the electromagnetic lithotripter (Dornier Alpha Compact) along with analgesics and hydration therapy; Group B: SWL was performed after 48 hours (delayed SWL) along with analgesics and hydration therapy. The statistical analysis was performed in 2 groups regarding patient demographic profile, presence of hydronephrosis, time to stone clearance, success rates, no. of sessions required, auxiliary procedures, modified efficiency quotient (EQ) and complications.

Results: 80 patients were enrolled in each group. The mean stone size was 7.3 mm in group A vs. 7.5 mm in group B ($p=0.52$). The stone fragmentation rate was 88.75% in group A vs 91.2% in group B ($p=0.35$). The overall 3 month stone free rate was (69/80)86.3% for group A vs (61/80)76.2% for group B ($p=0.34$). The mean time taken for stone clearance was significantly lesser in group A than in group B (10.2 days vs 21.1 days; $p=0.01$). The number of sessions required in group A were significantly lesser than group B (1.3 vs 2.7; $p=0.01$). The auxiliary procedure rate was also significantly lesser in group A than group B (16.3% vs 32.5%; $p=0.001$). The modified EQ (in %) was 67.2 in group A vs 59.4 in group B ($p=0.21$). The steinstrasse formation and requirement for PCN were significantly lesser in group A ($p=0.02$ and 0.01 respectively).

Conclusions: Early SWL (within 48 hours of onset of colicky pain) is feasible, safe, highly efficacious in the treatment of symptomatic proximal ureteral stones < 1 cm, resulting in lesser requirement of number of SWL sessions, time taken for stone clearance, auxiliary procedure rate and lesser complications in comparison to delayed SWL.