

PP-040

Non contrast CT scan as a predictor of SWL outcome for treatment of renal stones

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Purpose: We assess the value of non contrast computed tomography (NCCT) as a possible predictor of renal stone disintegration by shock wave lithotripsy (SWL), aiming for better selection of patients.

Materials and Methods: Forty five patients (27males, 18 females) with mean age (39.1 ± 12.5 yr) were reviewed in the period between August 2008 to September 2009. All patients had a solitary renal stone ranging in size from 5 to 25mm. High resolution NCCT was done and a bone window was used to measure stone attenuation values. SWL was performed with an electromagnetic lithotripter. Failure was defined as no stone fragmentation after three sessions. The impact of patient's sex, age, body mass index (BMI) and stones' location, volume, mean attenuation value and the skin to stone distance on stone disintegration was statistically evaluated. The mean follow up period was 3 months.

Results: The overall stone free rate at 3 months was 84.4% (38 of 45 patients); 28 patients were stone free and 10 patients had residual fragments <4mm. The only significant predictor of residual fragments was stone density ($P < 0.001$). Failure of disintegration was observed in 7 patients (15.5%). Stone density >1000HU and BMI >30 were the significant independent predictors of failure ($P = 0.002$ and 0.001 , respectively).

Conclusion: Increased stone density as detected by NCCT is a significant predictor of failure to fragment renal stones by SWL. An alternate treatment should be devised for obese patients with stone density > 1000HU.

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