**Relationship between the Stone Composition and the ESWL Results**

**Introduction and Objective:** The extracorporeal shockwaves lithotripsy (ESWL) is the first choice treatment of small sized kidney stones, its results depends on a lot of factors. We will study the relationship between the stone composition and the ESWL results.
**Materials and Methods:** Prospective study conducted over three years (June 2007 to June 2010) on 100 patients with the same criteria (BMI< 30 kg/m², pelvic stones<20 mm). The inclusion criteria: all patients presenting for urinary stones < 2 cm and who are good indication for ESWL, initial evaluation criteria are: age, BMI, stone density. The lithotripter used was SIEMENS-MODULARIS Lithovario: electromagnetic using fluoroscopic and ultrasonographic guidance, shock waves frequency was 1.0 Hz; the total number of shocks does not exceed 7000 shocks. Results evaluation: Good result: stone fee and Failure: if residual stones > 4 mm or no fragmentation after 2 sessions of ESWL. In cases of failure, patients underwent endourologic or surgical procedures and the stones were analyzed. All fragments were sent for infra-red spectroscopy analysis.
**Results:** The medium age of our patients was 42 years old (6-85 YO), 54 males and 46 females, the medium BMI was 27Kg/m², the stone density was more than the bone in 60%, equivalent to the bone in 29%, less dense in 7% and 4 cases of radiolucent stones. The medium density of stone was 855 Hounsfield Unity (302-1455). The total success rate of ESWL was 60% after one session of treatment and 76% after 2 sessions. Success rate was: 60% in calcium oxalate monohydrate, 80% in calcium oxalate dehydrate, 90% in calcium phosphate and 100% in stones formed with uric acid.
**Conclusions:** Calcium oxalate monohydrate are hard to disintegrate with ESWL however and although these high rates of failure with ESWL, this cannot lead us to recommend another therapeutic modality as first intention for these stones.
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