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Change of the composition of urinary stones according to the method of their removal

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Introduction: Urolithiasis is characterized by the formation of a stone in the kidneys or urinary tract. Shockwave Lithotripsy (SWL), Ureteroscopy (URS), Percutaneous Nephrolithotomy (PCNL) and open surgery are all effective methods to remove urinary stones.

Aims & Objectives: The objective of this work is to study the potential impact of the mode of removal of urinary stones on their chemical composition qualitatively and quantitatively in order to take it into account, in addition to the socio-economic level, when comparing the studied series.

Material & Methods: 607 stones were collected from adult patients attending the Hospital-University Centers. The stones were obtained from spontaneous passage, SWL and open surgery and then were analyzed using a JASCO FT-IR Spectrophotometer. The results were analyzed by chi-square test and by ANOVA.

Results: The stones were classified according to their major components depending on the method of removal. Our results emphasize a high percentage of calcium oxalate stones. COM was the most abundant stone type with an importance rate in SWL stone groups. In contrast, a high percentage of struvite and carabapatite stones were found in open surgery stone groups. They also show a higher number of compounds by urinary stone in open surgery groups than in SWL groups. This variation may be due to a loss of substantial fragments of Carbapatite and of struvite for the stones that were treated with SWL.

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