

## The role of contemporan lithotripters in the treatment of reno-urethral stones

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**Introduction:** Presently, in Republic of Moldova the urinary stone disease is situated on the first place in the structure of the clinical urological illnesses. The fact that the urolithiasis preponderantly affects the persons with a productive age, being very rare in elders and children, having a frequency of over 70% in the patients aged 20-25 years, which leads to the loss of the working ability. There are many methods of treatment for kidney stones described in the scientific literature as conservative, surgical, laparoscopic, endoscopic, and ESWL. In this study, we have analyzed the ESWL method of treatment of reno-ureteral stones by different generations of lithotripters.

**Methods:** The study was made in the Urology and Nephrology Clinic of the Republican Clinical Hospital, during January 2005 and August 2011, on a group of 484 patients diagnosed with reno-ureteral lithiasis and treated with ESWL. The patients have been distributed in two lots according to the criteria of the study. The first lot of study contained 325 patients, who have been treated by using Lithostar Multiline device, produced by "Siemens", year of fabrication 1996, during January 2005 and April 2006. The second lot consisted of 158 patients, treated with the new Modulith SLK Storz Medical lithotripter, year of fabrication 2010, during May-August 2011. The distribution of calculi at the renal/ ureteral level is presented in Table1.

The protocol of investigations contained the following elements: the clinical examination, usual laboratory samples, abdominal ultrasound, KUB, intravenous urography and, in some cases, a CT scan or a spiral CT scan, retrograde uretheropielography.

**Results:** The criteria of results analysis were the following: rate of success, number of failures, time of eliminating the calculi, the complications and their way of solving. The "stone-free" (fragmenting and completely eliminating the calculus) rate of success is directly connected with the used lithotripter. In order to disintegrate the calculi in 325 patients in the first lot, 404 ESWL sessions were done, in 61 (18,8%) cases the repeating of the procedure was necessary, in 9 (2,8%) cases, the lithotripsy was needed in the third session. In the second lot, for the treatment of 158 patients, 193 ESWL sessions were done, in 33 (20,9%) cases, the ESWL was done twice and only in 1(0,6%) patient the ESWL was done thrice. The major complications post-ESWL and their solving is presented in Table2.

**Conclusions:** There are still many controversies about the effectiveness of different models of lithotripters but the lithotripter type Modulith SLK Storz Medical used in our clinic has proved to be very effective. ESWL is currently the first-line treatment for the majority of kidney and ureteral stones, which are up to 20 mm in diameter.

The modern lithotripters and the use of new, performing technologies offer the possibility of enlarging the sizes' range, the chemical structure of the calculi and the ESWL list of indications.

**Table 1. The distribution of calculi at the renal/ureteral level**

Localization	First lot	First lot	Second lot	Second lot
	n	%	n	%
<b>Kidney</b>	126	38,8	63	39,9
superior calices	6	1,8	3	1,9
medium calices	1	0,3	4	2,5
inferior calices	15	4,6	5	3,2
basin	68	20,9	46	29,1
JPU	35	10,8	4	2,5
<b>Ureter</b>	199	61,2	95	60,1
1/3 superior	87	26,8	23	14,6
1/3 medium	17	5,2	20	12,7
1/3 inferior	96	29,5	53	33,5

**Table 2. The major complications post-ESWL and their solving**

Complication	First lot	First lot	First lot	Second lot	Second lot	Second lot	p
	Nr	%	solving	Nr	%	solving	
Acute pyelonephritis	12	3,7	Ureteral Catheterization Antibiotics	1	0,6	Ureteral Catheterization Antibiotics	<0.05
Subcapsular Hematoma	1	0,3	Open drainage	0	-	-	-
„Steinstrasse“	30	9,2	Analgesic Spasmolytics Ureteral Catheterization	12	7,6	Analgesic Spasmolytics Ureteral Catheterization	>0.05
Death	1	0,3	-	0	-	-	-

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