

**Results:** A statistical difference was obtained between the plasma levels of  $\beta$ -endorphin at 0, 10 and 30 min of ESWL treatment ( $p=0.002$ ,  $p<0.05$  Friedman test). A statistical difference was not obtained between the plasma levels of ACTH at 0, 10 and 30 min of ESWL treatment ( $p=0.698$ ,  $p>0.05$  Friedman test). Between 10 and 30 min plasma levels of  $\beta$ -endorphin level were not found to be significantly different ( $p=0.397$ ,  $p>0.05$  Wilcoxon test). A moderate positive correlation was determined between 10 min  $\beta$ -endorphin levels and VAS scores ( $p=0.01$ ,  $p<0.05$  Friedman test).

**Conclusions:** Stress and pain caused by ESWL can be much better evaluated by  $\beta$ -endorphin rather than ACTH.

#### S107

##### ESWL monotherapy as primary modality of treating upper urethral stones

E. Bezhani\*, R. Domi, B. Hoxha, F. Tartari. *Nene Tereza Hospital, Dept. of Urology, Tirana, Albania*

**Introduction and Objectives:** Objectives: to present our experience with shock wave lithotripsy (ESWL) as a primary modality of treatment for upper urethral stones.

**Material and Methods:** From January 2006–June 2008 84 patients with upper ureteric stones were treated with ESWL as the primary modality with Siemens-Compact lithotripter. Aged 16–71 years old, male-female, ratio 2, 1–1, stone size 7–12 mm, pyuria was 0/84, clinical infections, 5/84, pre ESWL double J stenting 0/84, intavenous sedation 84/84, duration of symptoms under 4 weeks 28/84, after 4 weeks 56/84, stone size less than 10 mm 63/84, more than 10 mm 21/84/ The patients were examined with sonography, intravenous urography, BUN, creatinin, microscopic urine examination.

**Results:** The clearance rate was 96% for stones less than 10 mm and 85% for stones larger than 10 mm

**Conclusions:** ESWL as monotherapy has best results (overall success rate was 95%) when the stones were less than 10 mm, minimal analgesia is required with modern lithotripters.

#### S108

##### Omnice Tocas in complex treatment of urolithiasis

M. Georgiev, D. Ormanov, V. Vassilev, K. Bonev, P. Dimitrov, V. Mladenov\*, K. Yanev, A. Filev, P. Simeonov, P. Panchev. *Medical University, Clinic of Urology, Sofia, Bulgaria*

**Introduction and Objectives:** To conduct a randomized trial and determine the role of Omnice Tocas (Tamsulosin hydrochloride) as adjuvant therapy for the extracorporeal shockwave lithotripsy (ESWL) of kidney and ureter stones.

**Material and Methods:** From 02.2006 to 04.2007 were included 248 patients, of them 186 completed a full survey and were treated statistically, of them 121 were men and 65 women at mean age  $52\pm 21$  d. 77 ureter stones with medium size  $9\pm 4$  millimeters and 109 kidney stones with average size  $13\pm 7$  millimeters were lithotripped. Patients were randomized into two groups: Group A – patients treated with standard medications after ESWL: antibiotic, Prednisolon – 20 mg / 24 h for ten days and Diclofenac sodium in case of severe pain. Group B – patients received medication from Group A, but also Tamsulosin – 0.4 mg / 24 h was added for one month. All patients were followed for 4, 8, 12 weeks by KUB plain film combined with ultrasonography. The main values by which were compared the two groups were: ESWL efficiency, frequency of renal colic, time needed for elimination of the fragments, frequency of rehospitalisations, side effects.

**Results:** In the group of patients taking Tamsulosin, there was significantly better and faster elimination rate of stone fragments, that's why only for the first month 73.4% of them practically completely eliminated the stone fragments, while the group of patients receiving only corticosteroids, the value

reaching only 55.9% and  $p<0.001$ . Only 6.8 percent of patients taking Tamsulosin, needed rehospitalisations unlike the other group of which 21.7% –  $p<0.001$  were rehospitalised. In the group taking Tamsulosin renal colic was observed in 24.6% of the patients, opposed to the group receiving only corticosteroids – 68.4% –  $p<0.05$ . We have not observed side effects leading to discontinuation of the treatment.

**Conclusions:** From the conducted comparative analysis of the different parameters in the two randomized groups clearly show out the benefits of adjuvant drug therapy after ESWL, where patients besides standard treatment with corticosteroids and analgesics additionally take Tamsulosin.

#### S109

##### Ureterolithotripsy with the Stonebreaker™ system

L. Leonardopoulos\*, A. Leventis, S. Leontis, G. Sakelariou, J. Papazoglou, A. Rempelakos. *Hippokrateion Hospital, Dept. of Urology, Athens, Greece*

**Introduction and Objectives:** To estimate the safety and efficacy of the Stonebreaker™ portable, cordless, pneumatic lithotripter for intra-corporeal lithotripsy of ureteral stones.

**Material and Methods:** Ninety-six ureteral stone disease patients, six of which were ESWL failures, were prospectively included in this study during an 18-month period. Stone number and position, number of shocks required for stone fragmentation to size sufficient for removal, as well as operative time were recorded for each patient. Lithotripsy was performed through a semi-rigid ureteroscope under epidural anesthesia.

**Results:** One hundred and four stones were treated in our patient population. Upper, mid and lower ureteral stones were located in 9 (8.6%), 27 (26.0%) and 68 (65.4%) patients respectively. Mean stone size was 1.8 cm (0.7–3.4). Mean number of shocks delivered was 29 (12–76). Stone fragmentation was achieved in all patients, including ESWL failures. Repeat ureterolithotripsy and renal ESWL due to stone migration were performed in four and three patients respectively. No evidence of ureteral trauma due to the lithotripsy was noted. All patients remained stone-free at a three month follow-up.

**Conclusions:** Stonebreaker™ lithotripsy represents a safe, effective procedure with a short learning-curve for the treatment of ureteral stone disease.

#### S110

##### Ureteroscopy in the management of pediatric ureteral stones

T. Turunc, B. Kuzgunbay\*, U. Gul, U.T. Bilgiliyoy, C. Aygun, H. Ozkardes. *Baskent University, Dept. of Urology, Ankara, Turkey*

**Introduction and Objectives:** To evaluate efficiency and reliability of ureteroscopy in the management of pediatric ureteral stones.

**Material and Methods:** A retrospective review was performed for patients (31 male, 30 female) at median age 8.1 years (range, 6 months–16 years) who underwent rigid ureteroscopy between August 1998–March 2009. 7.5 Fr–9 Fr rigid ureteroscopy was performed to 66 cases in 61 patients, thus, 5 patients were bilateral. Stone localizations were 7 in proximal, 9 in middle and 50 in distal ureter.

**Results:** Average stone size was 8.22 mm (range, 4–20). Average operation time was 32.65 minutes (range, 15–100). No hydronephrosis was detected in 15 cases where minimal hydronephrosis was detected in 14, moderate in 16 and severe in 21 cases. In 31 cases, stones were extracted by basket catheter and pneumatic lithotripter was used in 35 cases. Initial ureteral balloon dilatation was performed to 5 cases. Double J (DJ) catheter was inserted in 36 patients. In 2 patients postoperative high fever occurred and hospitalization

time became longer. In 56 cases (84.8%), all of the stones were extracted with success. In one case which we could not get into ureter, stone was taken out with ureteroscopy after antegrade DJ catheter insertion. Secondary ureteroscopy was performed to 3 cases and ESWL to 5 cases as an additional treatment in which stones migrated to kidney.

**Conclusions:** Ureteroscopy in pediatric patients is not as easy as in adult patients, however, after a learning period, it is effective and safe. Surgeons have to pay more attention and use suitable equipments.

### S111

#### Management of ureteral calculi: shockwave lithotripsy or ureteroscopy?

K. Petkova\*, I. Saltirov, T. Petkov. *Military Medical Academy, Dept. of Urology and Nephrology, Sofia, Bulgaria*

**Introduction and Objectives:** To investigate and compare the efficacy and safety of shockwave lithotripsy (SWL) and ureteroscopy (URS) in the treatment of ureteral calculi.

**Material and Methods:** A total of 716 patients with ureteral calculi, who were treated for a period of 18 months (January 2005 – July 2006) were enrolled in this comparative study. The patients were divided in 3 groups: 459 patients (64%) underwent ESWL, 249 (35%) – ureteroscopy and 8 (1%) – open surgical ureterolithotomy. Electromagnetic machine Lithostar Multiline (Siemens, Germany) was used for lithotripsy using power levels from 17 kV to 23 kV. 211 (46%) patients required more than one SWL session. With the patient under spinal or general anesthesia, in the lithotomy position, ureteroscopy was conducted using a semirigid ureteroscope 8.5 Fr (Olympus, Germany). An ultrasound generator LUS-2 (Olympus, Germany) and Holmium YAG laser (VersaPlus, Power Suite) were used for intraluminal lithotripsy. Ureteral stent was inserted only in the presence of indications for stenting. The patients, in whom previous SWL and ureteroscopy were unsuccessful, underwent open surgery. Plain abdominal x-rays and ultrasound scans were obtained 3 months after the procedure.

**Results:** The demographic and clinical characteristics of all patients are statistically similar. At the third month postoperatively, 353 out of 459 (76%) patients in the SWL group, 212 out of 249 (85%) in the ureteroscopy with energetic stone disintegration group and 8 (100%) patients in the open surgery group, were free of residual stone fragments. The success rates depending on stone location in the proximal, mid- and distal ureter, were 80%, 72% and 78% for the SWL group and 74%, 82% and 100% for the URS group, respectively. Patients with unsuccessful URS due to proximal stone migration required insertion of double J stent and subsequent SWL. Patients with unsuccessful SWL, required an attempt of stone reposition and/or insertion of double J stent, and a second session of SWL 7 days after the first procedure. In cases of failure a ureteroscopy was performed. Only in 8 patients with ureteral calculi these 2 treatment methods were unsuccessful and an open surgical ureterolithotomy was performed.

**Conclusions:** Our results show that both URS and SWL as monotherapy or in combination are highly effective treatment methods of ureteral calculi. Open surgical ureterolithotomy is performed in only 1% of patients, in whom these treatment methods or the combination between the two of them were unsuccessful. SWL is safer and minimally invasive method that requires no anesthesia and in most cases no hospitalization of the patient, but on the other hand its success rate is lower and/or requires additional procedures. URS is a more effective method with higher success rate as single procedure and minimal complication rate, but it requires anesthesia and hospitalization of the patient.

### S112

#### Comparative evaluation of pneumatic versus holmium: YAG laser lithotripsy for impacted ureteral stones

M. Binbay<sup>1</sup>, A. Tepeler<sup>1</sup>, E. Yuruk<sup>2\*</sup>, O. Sarilar<sup>1</sup>, U. Ozkuvanci<sup>1</sup>, A.Y. Muslumanoglu<sup>1</sup>. <sup>1</sup>Haseki Training and Research Hospital, Dept. of Urology, Istanbul, Turkey; <sup>2</sup>Haseki Teaching and Research Hospital, Urology, Istanbul, Turkey

**Introduction and Objectives:** We prospectively analyzed and compared effectiveness and complications of pneumatic with the holmium:yttrium-aluminum-garnet (Ho:YAG) laser in the ureterorenoscopic management of impacted ureteral stones.

**Material and Methods:** From January 2006 to January 2008, we performed retrograde endoscopic treatment in 288 patients with ureteral stones in our clinic. The patients with impacted stones were prospectively randomized into two groups according to the lithotripter used to fragment the stone: pneumatic (n: 40) and laser (n: 40). The preoperative, operative and postoperative follow up findings are analyzed and compared.

**Results:** The average stone size was similar in both groups (11.3+4mm versus 11.4+5mm). The operation time was significantly diminished in laser (p<0.001). The stone free rates after a single ureteroscopic procedure were 80% and 97.5% in pneumatic and laser, respectively (p<0.05). Auxiliary treatments were needed in 8 (20%) patients in pneumatic group while it was needed only 1 (2.5%) patient in the laser group (p: 0.02). After the additional procedures 100% success rate was achieved in both groups. The rate of double J stent insertion was significantly higher in pneumatic (p: 0.01). In the pneumatic group, 3 cases of stone up migration and 1 case of post-operative stricture was seen while no such complication was noted in the laser group. The rate of complications was significantly higher in the pneumatic group (p: 0.02).

**Conclusions:** Ureteroscopic treatment with Holmium-YAG laser is effective first line therapy for chronically impacted ureteral stones with diminished operation time, high stone free, low complication and additional treatment rates.

### S113

#### The experiences in laparoscopic ureterolithotomy: multicentric analysis of cases, based on "Turkurolap Group"

E. Huri<sup>1\*</sup>, E. Başok<sup>2</sup>, O. Uğurlu<sup>3</sup>, C. Gürbüz<sup>2</sup>, T. Akgül<sup>4</sup>, S. Bedir<sup>5</sup>, Y. Özgök<sup>5</sup>. <sup>1</sup>Ankara Training and Research Hospital, Dept. of Second Urology Clinic, Asagioveçler, Ankara, Turkey; <sup>2</sup>İstanbul Göztepe Training and Research Hospital, Dept. of Urology Clinic, İstanbul, Turkey; <sup>3</sup>Ankara Numune Training and Research Hospital, Dept. of Urology Clinic, Ankara, Turkey; <sup>4</sup>Ankara Training and Research Hospital, Dept. of Second Urology Clinic, Ankara, Turkey; <sup>5</sup>Gülhane Military Medical Faculty, Dept. of Urology, Ankara, Turkey

**Introduction and Objectives:** The indication of laparoscopic surgery for ureter stones was restricted to the special cases, big size or impact stones. We presented special cases who underwent laparoscopic ureterolithotomy in various clinics.

**Material and Methods:** Forty-one patients were included to the study from 5 urology clinics in which routine laparoscopic surgery has been performing. Following history, physical examination, urine analysis, creatinin, intravenous urography, ultrasonograph, age, gender, stone size, hydronephrosis, previous ESWL, previous ureteroscopic stone therapy, laparoscopic approach, operation time, ureteric incision, insert double-j stent, amount of drainage, hospitalization period, complication were evaluated.

**Results:** Mean age was 41.8 in 30 male, 11 female patients. Mean ureter stone volume was 227.7 mm<sup>3</sup>. Retroperitoneoscopic was preferred in 35, transperitoneal in 6. In 4, Grade (G) I, 22 GII, 12 GIII were detected. In 6, previous ESWL was applied.