independent predictor for SWL success. The prediction model based on the logistic regression analysis was as follow: SWL success = 1 / (1 + exp (-10.165 + 0.279 x (BMI) + 0.334 x (diameter) + 1.040 (perinephric edema)) having AUC of 0.881. In the prediction model based on these parameters, the score of 0, 1, 2, and 3 correlated with SWL success rate of 98.5%, 65.7%, 31.4%, and 0% respectively.

CONCLUSIONS: BMI, stone diameter, and perinpehric edema are independent predictor for SWL outcome and prediction model based on these parameters can facilitate decision-making for SWL in proximal ureteral stone.

Table 1 Multivariate analysis for variables predicting failure of stone disintegration by shockwave lithotripsy

Multivariate analysis with continuous values of diameter, SSD lateral, and HU				
Variable	*OR (95% CI)*	*P value*	*B*	*S.E.*
BMI	1.322 (1.156-1.512)	0.000	0.279	0.069
Diameter	1.397 (1.259-1.551)	0.000	0.334	0.053
HU	1.000 (0.999-1.001)	0.878	0.000	0.001
Hydronephrosis (0-2 *vs* 3)	1.358 (0.547-3.376)	0.510	0.306	0.464
Perinephric edema (0-1 *vs* 2-3)	2.831 (1.032-7.764)	0.043	1.040	0.515
Tissue rim sign (0-2 *vs* 3)	1.323 (0.072-24.354)	0.851	0.280	1.486
Multivariate analysis with dichotomized values of diameter, SSD lateral, and HU				
Variable	*OR (95% CI)*	*P value*	*B*	*S.E.*
BMI	1.265 (1.113-1.438)	0.000	0.235	0.065
Diameter (<7mm, reference)	10.825 (5.308-22.076)	0.000	2.382	0.364
HU (650, reference)	1.429 (0.644-3.170)	0.380	0.357	0.407
Hydronephrosis (0-2 *vs* 3)	1.414 (0.584-3.420)	0.442	0.310	0.423
Perinephric edema (0-1 *vs* 2-3)	3.520 (1.409-8.797)	0.007	1.259	0.467
Tissue rim sign (0-2 *vs* 3)	2.306 (0.174-30.596)	0.527	0.835	1.319

OR odds ratio, *CI* confidence interval, *B* coefficient of regression, *SE* standard error

Table 2 Success rate of shockwave lithotripsy by risk stratification in solitary upper ureteral stone

Score	Definition	Success Rate
0	BMI < 25 kg/m^2 *and* diameter < 7 mm *and* perinephric edema < grade 2	98.5%
1	Any one of the three (BMI ≥ 25 kg/m^2; diameter ≥ 7 mm; perinephric edema ≥ grade 2)	65.7%
2	Any two of the three (BMI ≥ 25 kg/m^2; diameter ≥ 7 mm; perinephric edema ≥ grade 2)	31.4%
3	≥ 25 kg/m^2 and diameter ≥ 7 mm and perinephric edema ≥ grade 2)	0%

BW body weight

BMI body mass index

Source of Funding: none

MP54-17

A PROSPECTIVE STUDY ON THE EFFECT OF SHOCKWAVE LITHOTRIPSY ON RENAL FIBROSIS

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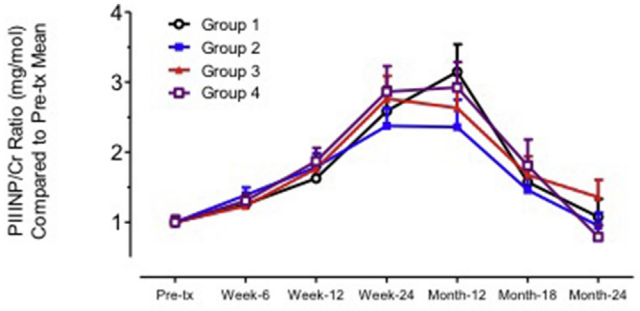
INTRODUCTION AND OBJECTIVES: There was limited information on the effect of shockwave lithotripsy (SWL) on renal fibrosis. Therefore, we investigate the effect of SWL on renal fibrosis, using urinary procollagen III aminoterminal propeptide (PIIINP) level as a surrogate marker for renal fibrotic process, in human subjects after one section of SWL. Moreover, the role of two renal protective protocols, low-energy shockwave pretreatment protocol and pause-protection protocol, on renal fibrotic process would also be assessed.

METHODS: 320 patients with a solitary radiopaque renal stone < 15mm, were recruited prospectively for this study. Patients were randomized to receive one of four shockwave (SW) protocols: (1) receiving 80% power (19.2 kV) from beginning until the end of treatment; (2) receiving the first 100 SWs at 40% power (9.6 kV), followed by SWs at 80% power until the end of treatment; (3) receiving 100 shocks at 40% power, followed by a 3-minute pause and then further SWs at 80% power until the end of treatment; and (4) receiving 100 shocks at 80% power, followed by a 3-minute pause and then further SWs at 80% power until the end of treatment. Spot urine samples were collected before and after treatment for two year, for marker measurement.

RESULTS: Baseline information and treatment parameters of the four groups were comparable. There was no difference between the baseline PIIINP levels among the four treatment groups. There was a significant rise in PIIINP level from 6-weeks until 18 months after SWL for the whole group, as well as individual groups ($p<0.05$). The level of PIIINP reached a peak at 1-year after SWL and then gradually came back to baseline level at 2-year after SWL. (Figure 1)

CONCLUSIONS: SWL resulted in a prolonged increase in renal fibrotic process, which was similar in patients treated with different protective treatment protocols.



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MP54-18

EMERGENCY EXTRACORPOREAL SHOCKWAVE LITHOTRIPSY (EESWL) FOR ACUTE RENAL COLIC DUE TO URETERAL STONES

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INTRODUCTION AND OBJECTIVES: The aim of this study is to understand the role of extracorporeal shockwave lithotripsy (ESWL) as first-line treatment in patients with acute renal colic due to obstructive ureteral stones.

METHODS: We prospectively studied 70 patients presenting with their first episode of ureteric colic undergone extracorporeal shockwave lithotripsy (ESWL) over a 14 months period. Patients were randomized to emergency ESWL within 12 hours (eESWL group) or deferred ESWL until 20 days (dESWL group). Inclusion criteria were: acute renal colic, ureteral radiolucent or hyperechogenic stones from 5 to 20mm, no urinary infection or acute renal failure. Follow up included ultrasound or CT-scan at 24 hours, 7 days, 1 and 3 months. When it was necessary, repeated ESWL (re-ESWL) or ureteroscopy (URS) was performed. Preoperative and postoperative data between the two groups were compared and stone free rate (SFR) and efficiency quotient (EQ) were evaluated. Analyses were performed using SAS (9.3 version) statistical software.

RESULTS: 36 patients from eESWL group and 34 patients from dESWL group were well matched for age, gender, BMI and clinical and pathological characteristics. The mean patient age was 48.7 (range 24-81). Mean stone size was 9,8 mm (range 5-20mm). 25 stones (35.7%) were located in the upper and 45 (64.3%) in the distal ureter. Mean ESWL energy was 19,2 kV (range 14-24kV) and mean number of shock waves was 2650 (range 1000-3600). ESWL treatment lasted on average 44 minutes (range 17-60 minutes). All the procedures were conducted at the frequency of 1 Hz. No treatment was interrupted because of poor tolerance. Patients in the dESWL group spent more time in the hospital (2.21 vs 1.36 days) and the complication rates were paragonable in both groups ($p<0.05$). eESWL patients needs less auxiliary URS than dESWL patients, 11.1% vs 44.1% respectively and less re-ESWL 8.3% vs 32.4% respectively ($p<0.05$). The SFR at 24 hours was 52.8% and 11,8% in the eESWL and dESWL group respectively ($p<0.05$). The SFR at 3 months was 94.4% and 79.4% ($p=0.07$) and EQ was 79.1% and 57.5% in the eESWL and dESWL group respectively ($p<0.01$).

CONCLUSIONS: eESWL is a safe procedure and delivers high SFR even within 24 hours. It offers effective decompression of the