

Abstracts**33rd World Congress of Endourology & SWL, 1-4 October 2015,
London****Moderated Poster Session 17 / Stones: SWL****17****The new versus the old: Comparison of outcomes of extracorporeal shockwave lithotripsy (ESWL) treatment using two different lithotripters**

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Introduction

ESWL is a popular treatment option for renal stones. The Storz Modulith SLK Inline lithotripter was purchased in March 2014. Prior to this the 'prone' Storz Modulith was used. ESWL is usually required for a maximum of three sessions. The primary outcome of this study was to compare stone-free rates from a cohort of patients treated with the old versus the new lithotripter. The 2nd phase of the study involved a prospective structured questionnaire recording the patient experience before, during and after lithotripsy using the new lithotripter.

Patients and Methods

Data was retrospectively collected from electronic hospital databases for 50 patients treated between December 2013 and March 2014 (old lithotripter) with 50 treated between April and July 2014 (new lithotripter). Pre-treatment data collected included stone size, site and Hounsfield unit density. Treatment data included shockwave power and frequency, and number of treatment sessions. Stone-free rate was determined by post-treatment KUB, USS and/or CTKUB. The prospective patient questionnaires were completed before and after the first treatment, then four weeks after the first treatment. Questions involved 1-5 likert scales and blank space questions and covered their understanding and experience of the treatment and their symptoms after discharge.

Results

Age, gender, stone history and stone characteristics were similar in each group. Stone-free rates for the old and the new lithotripter respectively were: 26% vs 29% after the first session, 42% vs 48% after the second and 56% vs 75% after the third. Four patients from the old (all elective) and three (1 elective, 2 acute) from the new lithotripter group needed subsequent ureteroscopy. Patients were satisfied with the lithotripsy they received with the new lithotripter. Their experience of pain was variable but they had less urine infection symptoms and skin changes in comparison to expectations based on the BAUS information leaflet. Areas for improvement were better pre-treatment information, headphones with music during the procedure and a helpline for questions following discharge.

Conclusions

The new lithotripter appears to achieve a higher clearance rate after both two and three sessions. Some patients having imaging prior to their 3rd planned session would improve the efficiency of the lists. On-going patient feedback is allowing us to make improvements to our service, optimise the patient experience and provide more accurate information when counselling and consenting patients for ESWL.

Source:

<http://wce.multilearning.com/wce/2015/eposters/112153/luke.forster.the.new.versus.the.old.comparison.of.outcomes.of.extracorporeal.html?f=p6m2e874>



The new versus the old: Comparison of outcomes of extracorporeal shockwave lithotripsy (ESWL) treatment using two different lithotripters

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BACKGROUND

- The Storz Modulith SLK Inline lithotripter was purchased in March 2014.
- Prior to this the 'prone' Storz Modulith was used.
- ESWL is usually required for a maximum of three sessions.
- Patients are discussed at the multi-disciplinary team meeting before undergoing ESWL.
- Patients should routinely receive the BAUS information sheet.

OBJECTIVES

- The primary outcome of this study was to compare stone-free rates from a cohort of patients treated with the old versus the new lithotripter.
- The 2nd phase of the study involved a prospective structured questionnaire recording the patient experience before, during and after lithotripsy using the new lithotripter.

MATERIALS & METHODS

- Data was retrospectively collected from hospital databases
- 50 patients treated between December 2013 and March 2014 (old lithotripter) with 50 treated between April and July 2014 (new lithotripter).
- Pre-treatment data collected included stone size, site and Hounsfield unit density.
- Treatment data included shockwave power and frequency, and number of treatment sessions.
- Stone-free rate was determined by post-treatment KUB, USS and/or CTKUB, and were analysed using the chi-squared test.
- The prospective patient questionnaires were completed before and after the first treatment, then four weeks after the first treatment.
- Questions involved 1-5 likert scales and blank space questions and covered their understanding and experience of the treatment and their symptoms after discharge.

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Table 1. Selected baseline and treatment characteristics

Parameter	New lithotripter	Old lithotripter	P-value*
Number scheduled	50	50	
Mean age (years)	49.4	49.5	0.21
Sex: M	31	31	1.00
F	19	19	
Stone site:			
Upper pole	6	8	0.80
Mid pole	10	10	
Lower pole	28	29	
Upper ureter	1	0	
Mid ureter	2	1	
PUJ	3	2	
Stone size (mm)	7.0	6.7	0.07
Mean skin-stone distance (mm)	101	94	0.10
Mean stone density (Hounsfield units)	847	797	0.63
Shockwaves (mean)	3707	3794	0.27
Frequency (Hz)	2	2	1.00

*P-value is based on chi-squared test for categorical variables and 2-sample t-test for continuous variables

Treatment Outcomes

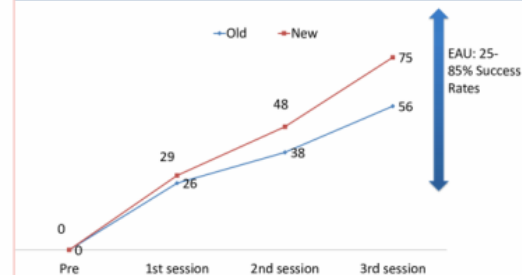
- Age, gender, stone characteristics and treatment characteristics were similar in each group.
- Stone-free rates for the new versus the old lithotripter were: 29% vs 26% after the first session (p=0.72), 48% vs 38% after the second (p=0.32) and 75% vs 56% after the third (p=0.04).**
- Four patients from the old (all elective) and three (1 elective, 2 acute) from the new lithotripter group needed subsequent ureteroscopy.

SUMMARY

- Stone-free rates were higher in patients receiving treatment with the new lithotripter.
- Both groups had patients requiring ureteroscopy.
- Patient experience, e.g. pain, was difficult to quantify
- Patients rated their information, treatment and experience highly
- The BAUS information sheet gives patients a realistic insight into their upcoming treatment
- Feedback for service improvement included a helpline for advice and the availability of music during the treatment

RESULTS

Figure 1: Percentage stone-free rates



The Storz Modulith Inline has superior patient comfort and uses dual imaging to enhance stone treatment

Patient Reported Outcomes

- Patients were satisfied with the lithotripsy they received with the new lithotripter. The quality of verbal communication, from staff and sonographer, in particular, was rated highly.
- Their experience of pain was variable.
- Less than 5% of patients experienced urine infection and skin changes in comparison to expectations of 10% based on the BAUS information leaflet.
- Post lithotripsy 90% of patients were satisfied with the treatment they received.
- Out of the patients returning for a second appointment 94% would recommend this treatment to a family member
- Areas for improvement would be more accurate pre-treatment written information, more specific pre and post analgesia, availability of a helpline for advice and headphones with music during the procedure.

CONCLUSIONS

- The new lithotripter appears to achieve a higher clearance rate after both two and three sessions, with the difference between stone-free rates after the 3rd session achieving statistical significance in our study.
- Some patients having imaging prior to their 3rd planned session would improve the efficiency of the lists.
- On-going patient feedback is allowing us to make improvements to our service, optimise the patient experience and provide more accurate information when counselling and consenting patients for ESWL.
- The imminent national BAUS audit will give a prospective snapshot into 'real-life' ESWL outcomes.

REFERENCES

- The British Association of Urological Surgeons. 2014. *Kidney Stones*. [ONLINE] Available at: http://www.baus.org.uk/patients/conditions/6/kidney_stones
- European Association of Urology. <http://uroweb.org/>