STONES

Extracorporeal shock wave lithotripsy in children

The incidence of urolithiasis is increasing in children across the US and worldwide, bringing extracorporeal shock wave lithotripsy (ESWL) back into the spotlight and raising the question of whether it is still the method of choice for treating children with stone disease. Two new studies published in the September issue of *The Journal of Urology* address the suitability and safety of ESWL.

Abbas Basiri and colleagues from the Urology and Nephrology Research Center in Tehran, Iran, report the results of a multicenter randomized controlled trial comparing ESWL with transureteral lithotripsy (TUL) in 100 children aged 1–13 years with distal ureteral calculi. TUL has gained recent popularity owing to advances in ureteroscope technology, and has been suggested to achieve better outcomes than ESWL. However, it is a more invasive procedure and has been associated with ureteral perforation and stricture.

Stone-free rates 2 weeks after lithotripsy were significantly higher in patients who underwent TUL (78%) than in those who received a single session of ESWL (56%; $P = 0.001$). Similarly, the efficiency quotient was higher in the TUL group (81%) than the ESWL cohort (62%; $P = 0.001$). Minor complications were reported at similar rates in both groups. Ureteral perforation occurred in two children who underwent TUL, while ureteral stricture was not observed with this approach.

Although their sample size was small, the authors suggest that TUL might be the superior treatment option for children with distal ureteral stones. They intend to continue their research by exploring the best treatment for calculi in other regions of the ureter.

In the second study, Fayad *et al.* prospectively analyzed the long-term impact of ESWL on renal function in 100 children aged 3–14 years with renal stones. A total of 153 stones were treated with ESWL in a mean number of 1.53 sessions. The overall stone-free rate was 88% after a maximum of 3 sessions. The remaining 12% of children proceeded to percutaneous nephrolithotomy.

Kidney function was evaluated in all patients before the first ESWL session and 6 months after the last session using static radionuclide scanning. Glomerular filtration rate (GFR) was estimated using DTPA uptake. No difference was found between GFR measured before and after ESWL; baseline mean GFR was 113.13 ml/min, compared to 113.01 ml/min 6 months after the last session ($P = 0.460$). Furthermore, no patients exhibited signs of parenchymal renal scarring, assessed by DMSA uptake, before or after ESWL.

Thus, regardless of stone burden (mean stone size 12.1 mm, range 8–27 mm) and number of ESWL sessions (up to 3), there was no evidence of impaired renal function in this study, confirming the long-term safety of ESWL in children with kidney stones.

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Original articles Basiri, A. *et al.* A multicenter, randomized, controlled trial of transureteral and shock wave lithotripsy—which is the best minimally invasive modality to treat distal ureteral calculi in children? *J. Urol.* **184**, 1108–1110 (2010) | Fayad, A. *et al.* Evaluation of renal function in children undergoing extracorporeal shock wave lithotripsy. *J. Urol.* **184**, 1111–1115 (2010)