

The efficacy and safety of the EMS Swiss Lithoclast® Trilogy Trilogy: a European multicenter prospective study on behalf of ESUT

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INTRODUCTION

PCNL requires a lithotrite to efficiently break and remove stones. We set out to determine the efficacy and safety of a new lithotrite, the EMS Swiss Lithoclast® Trilogy, in the first reported prospective European multicentre evaluation. We compare it to published clinical stone clearance rates based on surface area for other dual energy lithotrites¹ (24-32.3 mm2/min), and using the 3D calculated stone volume, to the single published series for the Lithoclast Trilogy (591mm3/min)².

METHOD

A total of 10 European centres evaluated the efficiency and safety of the EMS Swiss Lithoclast[®] Trilogy, in a prospective non-randomised fashion. Objective measures of stone clearance rate, device malfunction, stone-free rate, and complications were assessed. Each surgeon evaluated subjective parameters, including ergonomic and device effectiveness, for each case, related to use of Trilogy, on a 1-10 scale (10 = extremely ergonomic / effective), and compared it to their usual lithotrite on a 1-10 scale (10 = extremely effective).





RESULTS

53 patients undergoing PCNL were included (28 male, 25 female, mean age 57 (range 16-84)), five of which were miniaturized (16Fr). The mean stone clearance rate was 58mm2/minute, or 1202 mm3/minute based on calculated 3D stone volume. The stone-free rate on fluoroscopy screening at the end of the case was 75%. Long term follow up is awaited. The subjective surgeon feedback for ergonomic score was 8.2, which was the least satisfactory element. The highest feedback was for suction effectiveness at 9.4, with 9.3 for combination effectiveness and 9.13 for overall effectiveness compared to the lithotrite most commonly used previously (See graphs below). Five cases experienced a probe breakage, and there were two other device related complications, none of which required using a different lithotrite.



User VAS Rating of Swiss Lithoclast[®]

²Sabnis et al, World J Urology, 2019. Epub ahead of print

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CONCLUSIONS

This multicentre prospective study has demonstrated that the new EMS Swiss Lithoclast[®] Trilogy is highly effective at stone removal. The stone removal efficiency of Trilogy is almost 100% greater compared to published data on other dual energy lithotrites.

The device was perceived by surgeons to be highly effective overall and compared to their most commonly used previous lithotrite.

The probe breakage rate was 9%, which may represent the learning curve of lack of familiarity with a new device, or may suggest that manufacturing or control box parameters require modifications.



