

## In Vitro Effects of Different Settings of Calculase II Upon Different Stone Classes

**Introduction and Objectives:** Flexible ureterorenoscopy with laser has emerged as a standard treatment for kidney stones, thanks to its low morbidity and its efficacy better than ESWL. One advantage compared to ESWL could be the ability to treat shockwave-resistant stones. We wanted to test two parameters settings of calculase II STORZ<sup>®</sup> laser on five stone species.

**Materials and Methods:** Some stones were selected from the stone library of the Tenon hospital because of their size, the ability to represent their species and to obtain some comparable fragments. Tested species were: brushite (BRU), cystine (CYS), calcium oxalate monohydrate (COM), struvite (STRU), uric acid (AcUr). Stones were put in a tube with glue paste in the back and bathed in saline. Stones were then treated with a laser calculase II STORZ using a 235  $\mu$  fiber during 20 seconds. Parameters settings were « 5W », 10 Hz and 0.5 J (« high frequency, low energy ») or « 4.8 », 4 Hz and 1.2 J (« low frequency, high energy »). Fiber was kept in touch with the stone. Considering the first phase results, bigger fragments from the same species were tested with 4.8 mode during one minute. Results were described by one single operator.

**Results:** For all the species, it is obvious that 4.8 W mode permitted a bigger impact than 5 W mode. The impact is not so different according to species but COM seems to be really more resistant.

**Conclusion:** SWL resistance based classification seems irrelevant for laser resistance. Laser resistance seems to be similarly different between SWL resistant species (such as brushite and cystine) from non-resistant species (struvite, uric acid). Only calcium oxalate monohydrate seems to have a greater resistance to laser.

