

## Abstract 203

### COMPARATIVE STUDY OF COMMONLY USED INTRAOCULAR FORCEPS

Oral

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#### **Purpose:**

To establish the subtle differences in performance, accuracy, precision, and safety of three commonly used intraocular forceps tip designs and compare their effectivity and safety margins.

#### **Methods:**

Internal limiting membrane pinch peeling procedure was modelled using a purpose-built robotic system with a biomimetic membrane resembling retinal layers. Perforation pressure through excessive denting, dent versus lift curve, maximum lift and safety ranges for 27-gauge Eckardt End-Gripping, 27-gauge Katalyst stiff Dex and a 27 gauge Ultrapeel forceps were compared.

#### **Results:**

Perforation pressure through excessive denting was 15.85, 15.48 and 16.01 mg for Eckart, Katalyst and Ultra-peel forceps. Dent versus lift curve showed an initial positive then a plateau and finally a negative correlation. Maximum lift was 15.29, 8.43 and 11.13 mg for Eckart, Katalyst and Ultra-peel. The minimum dent to achieve the maximum lift was 1.10, 10.42 and 0.97mg for Eckart, Katalyst and ultra-peel. The safety range was 14.75, 5.06 and 15.04 mg for Eckart, Katalyst and ultra peel.

#### **Conclusions:**

Forceps tip design has significant influence on its overall performance and safety. Manufacturers should be encouraged to provide detailed and objective data in relation to the performance of their designs to enhance safety and ensure appropriate usage. Currently no objective data is being provided by any forceps manufacturers.