

# **Sensitivity Change in Cornea and Tear Layer due to Incision Difference on Cataract Surgery with Either Manual Small-Incision Cataract Surgery or Phacoemulsification**

**Sitompul, Ratna MD, PhD; Sancoyo, Grace S MD; Hutaaruk, Johan A MD; Gondhowiardjo, Tjahjono D MD, PhD**



## **Abstract**

**Purpose:** To describe corneal sensitivity changes caused by different incision methods-manual small-incision cataract surgery (manual SICS) and phacoemulsification-and their influence on tear film quantity and quality.

**Methods:** This was a prospective observational study conducted in 30 subjects undergoing manual SICS or phacoemulsification. Corneal sensitivity was assessed before and 1, 7, and 15 days after surgery by Cochet-Bonnet esthesiometer. Tear meniscus, noninvasive breakup time, lipid pattern, and Schirmer test results were evaluated. Patient symptoms were reviewed based on the Ocular Surface Disease Index.

**Results:** In the group undergoing phacoemulsification, corneal sensitivity decreased at the incision site and at other sites on days 1, 7, and 15 after surgery, whereas in the group undergoing manual SICS, no change in corneal sensitivity was noted. Between-group difference in corneal sensitivity was significant on days 1, 7, and 15. Aqueous production significantly ( $P = 0.016$ ) increased on the first day in both groups and returned to presurgery level on day 15. Tear film quality decreased on day 1 only in the group undergoing manual SICS ( $P = 0.035$ ). Tear meniscus and tear lipid profile showed no change in either group. Patient symptoms significantly increased on day 1 in both groups, and the difference between the 2 groups was significant on day 15 ( $P = 0.044$ ).

**Conclusions:** Compared with manual SICS, temporal-side incision in phacoemulsification decreased corneal sensitivity in the incision site and other sites until day 15 and changes in tear film quantity and patient symptoms only on day 1.

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