

Clinical Medicine

Poster

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## Methodology and reliability of corneo-ptyerygium total area measurements utilizing image analysis method

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**Introduction:** To propose an objective method of quantifying pterygium total area utilizing image analysis method. **Methods:** 68 primary pterygium participants were selected from patients who visited an ophthalmology clinic. We adopted image analysis software in calculating the size of invading pterygium to the cornea. The marking of calculated area was done manually and the total area size was measured in pixel. The calculated area is defined as the area from the apex of pterygium to the limbal-corneal border. Then, from pixel it was transformed into a percentage (%), which represents the corneo-ptyerygium total area relative to the total corneal surface area. Intra-observer reliability testing was performed by the tracing process was repeated twice with a different sequence of images at least one (1) month apart. Inter-observer reliability were also examined by having two observers. Intraclass correlation (ICC) and scatter plot were used to describe the reliability of measurement. **Results:** The overall mean (N = 68) of corneo-ptyerygium total area was  $44.36 \pm 12.31\%$  (CI: 41.38 - 47.34). Reliability for ROI demarcation of corneo-ptyerygium total area were excellent with intra and inter-agreement of 0.999 (95%CI, 0.998- 0.999;  $P < 0.001$ ) and 0.998 (95%CI, 0.997- 0.999;  $P < 0.001$ ) respectively. **Conclusions:** The image analysis method is useful, reliable and practical in a clinical setting to objectively quantify corneo-ptyerygium total area regardless of the size and shapes. By having a standardized measurement of corneo-ptyerygium total area, the actual effects of the pterygium progression on changes of corneal curvature can be investigated.

**KEYWORDS:** Pterygium, corneo-ptyerygium, total area, image analysis