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The effect of body posture changes and central corneal thickness on intraocular pressure among healthy malays

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Abstract
Purpose: To study the relationship between intraocular pressure (IOP), posture, and central corneal thickness (CCT) among healthy Malays. Method: Thirty-four young adults had their IOPs measured using a handheld tonometer (Accutome, Pennsylvania, USA) after maintaining 5 min at four different postures; sitting upright, supine, supine & 45° inclination, and prone positions. The sequences of the postures were made random. CCT was measured using Oculus Pentacam (Oculus, Wetzlar, Germany), and the value at the corneal apex was taken. Participants were grouped into Group A with CCT of < 550 μm, and Group B of > 550 μm. Results: The highest IOP was recorded at the prone position 23.77±2.71 mmHg ($p < 0.001$), and the lowest was at sitting upright 15.43±2.67 mmHg ($p < 0.001$). IOP at the supine position was 17.31±3.07 mmHg, and at the supine & 45° inclination position was 16.00±2.80 mmHg. IOPs were significantly different between sitting upright and supine ($p = 0.03$), between sitting upright and prone ($p < 0.001$), between supine and prone ($p < 0.001$), and between supine & inclined 45° and prone ($p < 0.001$). There was no significant difference in IOPs between Group A and Group B at different postures ($p > 0.05$). Conclusions: Change in body posture significantly affects IOP, with the lowest IOP during the sitting upright position, and the highest at the prone position. IOP change upon posture shifts was not affected by CCT.

Author Keywords
Body Posture; Central corneal thickness; Healthy Malays; Intraocular pressure; Postural change

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