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## *In vivo* real-time intraocular pressure measurement: Non-invasive tonometer vs. intra-vitreous pressure sensor

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Real-time intraocular pressure (IOP) recording is important during ophthalmic surgery. Optical fiber pressure sensor opSens has inherent advantages for small size and immunity to electromagnetic interferences, and their accuracy and stability promoted the applications in medical science. In this study, we aimed to monitor and compare real-time IOP in rabbit eyes using rebound tonometer Tonovet and intra-vitreous pressure sensor opSens under different pressure conditions. IOP change was controlled by anterior chamber cannulation connected to a saline irrigation container at different heights. IOP was measured in 12 rabbits. OpSens sensor was inserted into the posterior chamber of the rabbit eye. At least ten Tonovet readings were recorded and averaged for each height. The rabbit eye level was set as 0 cm. The height of the saline bag was set at 30, 60, 90 and 120 cmH<sub>2</sub>O. It induced hydrostatic pressure at 22.07, 44.13, 66.2, 88.26 mmHg, respectively. At these irrigation heights, the opSens reading was 20.95±2.79, 44.37±2.29, 65.03±3.71, 86.00±3.88 mmHg. Tonovet measurements were 14.54±3.01, 25.93±3.44, 45.56±3.92, 62.14±6.69 mmHg. Tonovet underestimated IOP values especially when the IOP was much higher than 60 mmHg in rabbits. In conclusion, opSens reflected more reliable real time IOP reading in rabbits that make it more appropriate for IOP monitor during surgery especially in those procedures might induce elevation of IOP.

### Biography

Sha-Sha YU graduated from Xian Medical University with a Bachelor degree of Clinical Medicine in 2012. Currently, she is a PhD candidate in Tianjin Medical University and majors in Ophthalmology and Visual Sciences. She is currently doing her research work in the Laboratory of Retina-Brain Research, Department of Ophthalmology; University of Hong Kong. Her research works focus on investigating the mechanism of neuronal degeneration in optic nerve crush model and electrical stimulation application in neurodegenerative diseases.

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