
WHITE PAPER

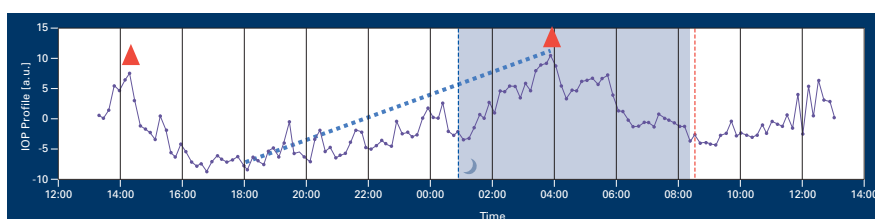
A patient with ocular hypertension: to treat or not to treat?**Case presentation**

A male patient, born in 1964, presented with advanced primary open angle glaucoma in his left eye (MD 15.4 dB) and ocular hypertension in his right eye. Best corrected visual acuity was 20/20 in both eyes, intraocular pressures were between 24 and 30 mm Hg (Goldmann applanation tonometry) at different points during daytime, pachymetry was 488 μm , the visual field without any damage (LV 3.1), HRT Moorfield's Regression Analysis within normal range, and the neuroretinal rim intact. Putting these data of the right eye into a glaucoma risk calculator, the risk to convert to POAG within 5 years would be approx. 15%.

We were interested in the profile of his intraocular pressure and applied the SENSIMED Triggerfish[®], a wireless sensing contact lens, on his right eye. This device enables continuous monitoring of changes of the corneal curvature due to changes of the intraocular pressure during 24 hours. The recording takes place each 9 minutes for 1 minute. The patient recorded his daily activities in a diary. The sleep time profile (when observing individual 1-minute recording details; not shown here) was characterized by the absence of the eye blink signals.

Results

Figure 1 shows the 24-hour profile starting at 13:30 with a slight increase, followed by a decrease and renewed gentle and sustained increase from 18:00 to 04:00 a.m. After this time the profile shows a downward trend again

*SENSIMED Triggerfish[®] Sensor in the eye**Figure 1*

to reach the starting value at the end of 24 hours. Initial IOP was 25 mmHg. The values on the ordinate are arbitrary units.

Because of the young age of this patient, the thin cornea and the advanced glaucoma in his left eye, we decided to introduce prostaglandin analogue therapy in the evening. After 2 weeks the patient came back for a second Triggerfish (see figure 2). It shows that the increase, formerly observed at 4:00 a.m., vanished in the flattened profile. The peak at noon remained, initial IOP was 14 mmHg.

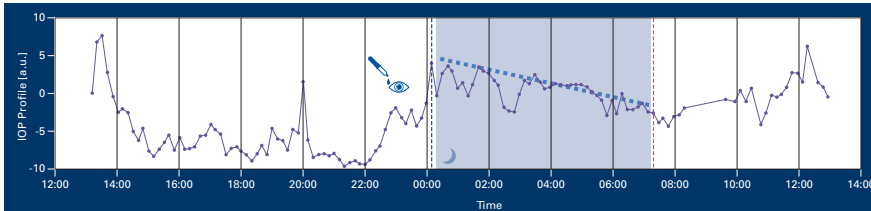


Figure 2

___ Conclusion

Retrospectively, the additional information we got from the Triggerfish supported our decision for treatment. The Triggerfish seems to be a useful part of the disease management. Standardisation, reproducibility and validity of the results are however still required, but coming soon.

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The SENSIMED Triggerfish® Sensor is a soft, hydrophilic silicone disposable contact lens embedding a MEMS sensor and a telemetry microprocessor.

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