Comparison of Fluctuations of Intraocular Pressure Before and After Selective Laser Trabeculoplasty in Normal-tension Glaucoma Patients

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Article first published online: November 16, 2013
doi: 10.1097/IJG.0000000000000026

ABSTRACT:

PURPOSE: The aim of this study was to examine the effects of selective laser trabeculoplasty (SLT) treatment on habitual intraocular pressure (IOP) fluctuations in patients with normal-tension glaucoma (NTG) using a SENSIMED Triggerfish contact lens sensor (CLS).

MATERIALS AND METHODS: Ten patients diagnosed with NTG were enrolled in this study. All patients underwent SLT treatment. Habitual 24-hour IOP fluctuations were recorded before and after SLT. The IOP fluctuations were divided into diurnal periods and nocturnal periods and compared before and after SLT. Changes in corneal thickness and curvature were measured before and after the CLS use with anterior segment optical coherence tomography.

RESULTS: The mean IOP was 13.5±2.5 mm Hg before SLT. The mean IOP at 1, 2, and 3 months after SLT was significantly decreased to 10.1±2.3 mm Hg (P=0.002), 11.2±2.7 mm Hg (P=0.0059), and 11.3±2.4 mm Hg (P=0.018), respectively. The range of IOP fluctuations over 24 hours was not significantly changed between before and after SLT treatment (P=0.77). Although the range of IOP fluctuations during the diurnal periods was not significantly changed between before and after SLT treatment (P=0.92), the range of IOP fluctuations during the nocturnal periods significantly decreased from 290±86 mVEq before SLT to 199±31 mVEq after SLT treatment (P=0.014). With respect to corneal changes, the steeper meridian decreased significantly after the CLS use (P=0.016), although other parameters showed no significant difference between before and after the CLS use.

CONCLUSIONS: SLT treatment was shown to significantly lower IOP and decrease IOP fluctuations during the nocturnal periods in NTG patients. These effects might be important to prevent the progression of NTG.