Abstract

The role of circadian intraocular pressure and blood pressure variations in stability of Primary Open Angle Glaucoma
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Purpose: This study was designed to determine if patients with unstable primary open-angle glaucoma (POAG) exhibit different fluctuations in IOP, blood pressure (BP) and autonomic function compared to those with stable POAG.
Study Design: A prospective, non-randomized observational study.
Patients and Methods: 38 subjects with mild or moderate glaucoma (21 with stable and 17 with unstable POAG) were recruited and evaluated for 24 hours in a controlled environment, having their intraocular and blood pressures measured. During the day (0700 to 2200), IOP was measured bihourly in sitting and supine positions, and BP measured every thirty minutes. At night (2200 to 0700), IOP was measured bihourly in the supine position and BP measured hourly. Patients were maintained on their normal medication schedules. A questionnaire was given to assess relative autonomic system dysfunction. Known risk factors for glaucoma and pertinent data were collected from clinic charts.
Results: The mean 24-hour fluctuation in intraocular pressure was 8.88 mmHg ($p < 0.0001$). IOPs displayed an upward trend during the night, with readings averaging 2.14 mmHg greater than daytime readings ($p < 0.0001$). The peak daytime IOP and the peak nighttime IOP did not vary significantly. IOPs measured in the supine position were an average of 2.78 mmHg higher than measurements made in the sitting position at the same time ($p <0.0001$).
Conclusion: This study has shown that significant fluctuations in intraocular pressure still occur in clinically controlled patients with POAG. Furthermore, supine measurements may provide a more clinically relevant picture in these patients, as compared to the more commonly measured sitting pressures. Al-Shifa Journal of Ophthalmology 2009; 5(2): 51-62