

## Glaucoma with Normal IOP, Is It True Normal Tension glaucoma or Something Else!

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**Abstract :** Introduction and aim: It is not unusual to find patients with glaucomatous damage and normal intraocular pressure, and to label a patient as Normal tension glaucoma (NTG) majority of clinicians depend on office Intraocular pressures (IOP) recordings; hence, the concern is that whether we are missing the late night or early morning spikes in this group of patients. Also, ischemia to the optic nerve is one of the presumed causes of damage in these patients, however demonstrating the same has been a challenge. The aim of this study was to evaluate IOP variations and patterns in a series of patients with open angles, glaucomatous discs or fields but normal office IOP, and in addition to identify ischemic factors for true NTG patients. Materials & Methods: This was an observational cross-sectional study from a tertiary care centre. The patients that underwent full day DVT from Jan 2012 to April 2014 were studied. All patients underwent IOP measurement on Goldmann applanation tonometry every 3 hours for 24 hours along with a recording of the blood pressure (BP). Further patients with normal IOP throughout the 24-hour period were evaluated with a cardiologist for echocardiography and carotid Doppler. Results: There were 47 patients and a maximum number of patients studied was in the age group of 50-70 years. A biphasic IOP peak was noted for almost all the patients. Out of the 47 patients, 2 were excluded from analysis as they were on treatment. 20 patients (42%) were diagnosed on DVT to have an IOP spike and were then diagnosed as open angle glaucoma and another 25 (55%) were diagnosed to have normal tension glaucoma and were subsequently advised a carotid Doppler and a cardiologists consult. Another interesting finding was that 9 patients had a nocturnal dip in their BP and 3 were found to have carotid artery stenosis. Conclusion: A continuous 24-hour monitoring of the IOP and BP is a very useful albeit mildly cumbersome tool which provides a wealth of information in cases of glaucoma presenting with normal office pressures. It is of great value in differentiating between normal tension glaucoma patients & open angle glaucoma patients. It also helps in timely diagnosis & possible intervention due to referral to a cardiologist in cases of carotid artery stenosis.

**Keywords :** carotid artery disease in NTG, diurnal variation of IOP, ischemia in glaucoma, normal tension glaucoma

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