

DISTRIBUTION OF OCULAR PERFUSION PRESSURE IN HYPERTENSIVE PATIENTS

ABSTRACT

Mean visual perfusion pressure (MOPP), which can be characterized as the contrast between mean blood vessel circulatory strain (MAP) and IOP is utilized to assess the visual blood stream. In the ongoing occasions, the job of vascular dysregulation has increased enormous noticeable quality in the pathogenesis of glaucoma, and consequently the connection among MOPP and the advancement and movement of glaucoma has gotten fundamental, alongside the heap factors that impact OPP, IOP, and MAP.

Keywords- Glaucoma, Mean visual perfusion pressure.

INTRODUCTION

Expanded intraocular pressure (IOP) has been distinguished as the most significant modifiable hazard factor for the improvement of POAG, anyway recognizing other conceivably modifiable hazard factors have likewise been order in treatment of these conditions. Ailments like foundational hypertension additionally contributes towards expanded IOP through overproduction or disabled surge of fluid cleverness. Not many investigations have discovered measurably noteworthy relationship between foundational hypertension and IOP. notwithstanding, the writing on the relationship between pulse (BP) and POAG is by all accounts conflicting.

Visual perfusion pressure (OPP) can be characterized as the contrast between mean blood vessel pressure (MAP) in the ophthalmic supply route and IOP. Tissue perfusion is basic to keeping up retinal capacity as it doesn't store glucose and furthermore the changing IOP in the eyes depends upon vascular auto guideline to repay this. Albeit high intraocular pressure was viewed as the most significant hazard factor being developed of well glaucoma, anyway even without high IOP, numerous patients still show movement of glaucoma. This illuminates the way that in certain patients, visual perfusion pressure (circulatory strain –

intraocular pressure) might be a sole significant factor as intraocular pressure alone. Accordingly, fundamental hypertension is viewed as being defensive against glaucoma. Epidemiological examinations done in the past have uncertain outcomes about the previously mentioned actuality. An elective hypothesis expresses that hypertension may not ensure against raised intraocular pressure, disregarding expanding visual perfusion pressure.

At the point when our weight level stays high for a really long time, the veins in our body and prominently inside the eye could solidify or get thickened.

At the point when the vessels become excessively thin from this thickening, the retina doesn't get enough blood stream and become unhealthy in light of the fact that it doesn't get enough oxygen and sustenance.

Side effects of hypertensive retinopathy are some of the time exceptionally gentle yet some understanding:

- Decreased vision or obscured vision.
- Bursting veins outwardly of the eye.
- Double vision.

Visual perfusion pressure determined as distinction between the target esteems for the diastolic or systolic foundational circulatory strain (BP) and IOP.

$$\text{Mean OPP (MPP)} = \frac{2}{3} [\text{diastolic BP} + \frac{1}{3} (\text{systolic BP} - \text{diastolic BP})] - \text{IOP}$$

$$\text{Systolic OPP (SPP)} = \text{Systolic BP} - \text{IOP}$$

$$\text{Diastolic OPP (DPP)} = \text{Diastolic BP} - \text{IOP}$$

A low mean visual perfusion pressure (MOPP) can hinder perfusion of optic nerve head prompting glaucomatous measuring and visual field misfortune.

MATERIALS AND METHODS

- Patient in the age group of 40-60 years with essential hypertension presenting to the Ophthalmology outpatient department of SreeBalaji medical college, Chennai – 600 044.

Study Design: Cross-sectional study

Study Period: March 2017 to October 2018.

Study Place: Ophthalmology outpatient department of SreeBalaji medical college, Chromepet, Chennai – 600 044.

Sample Size: 100 patients

Data Collection Method:

Informed consent was obtained from all study participants. A complete clinical and ocular examination was done to all eligible participants.

RESULTS

Total of 100 individuals were screened, of which, the mean age of the participants was 52 years, minimum and maximum age is 40 and 60 years. (Table-1)

Distribution of BP*OPP*IOP

Table 1: Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
SBP	99	15	160	134.76	17.510
DBP	99	70	95	82.43	4.710
OPP	99	38	60	49.29	5.648
IOP	100	12	20	15.70	1.224

The above table shows the mean value of the SBP, DBO, OPP and IOP of the study participants.

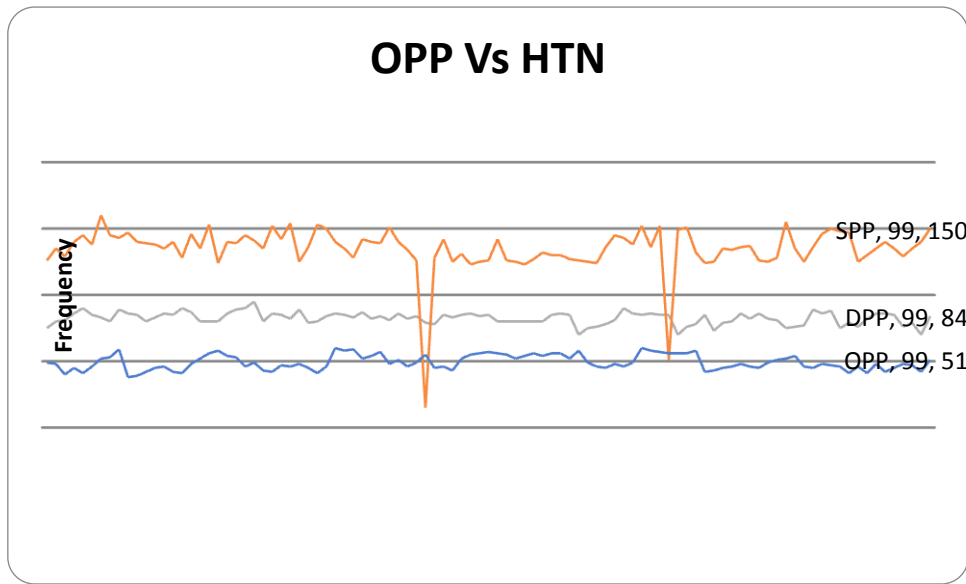


Figure – 1 OPP Vs HTN

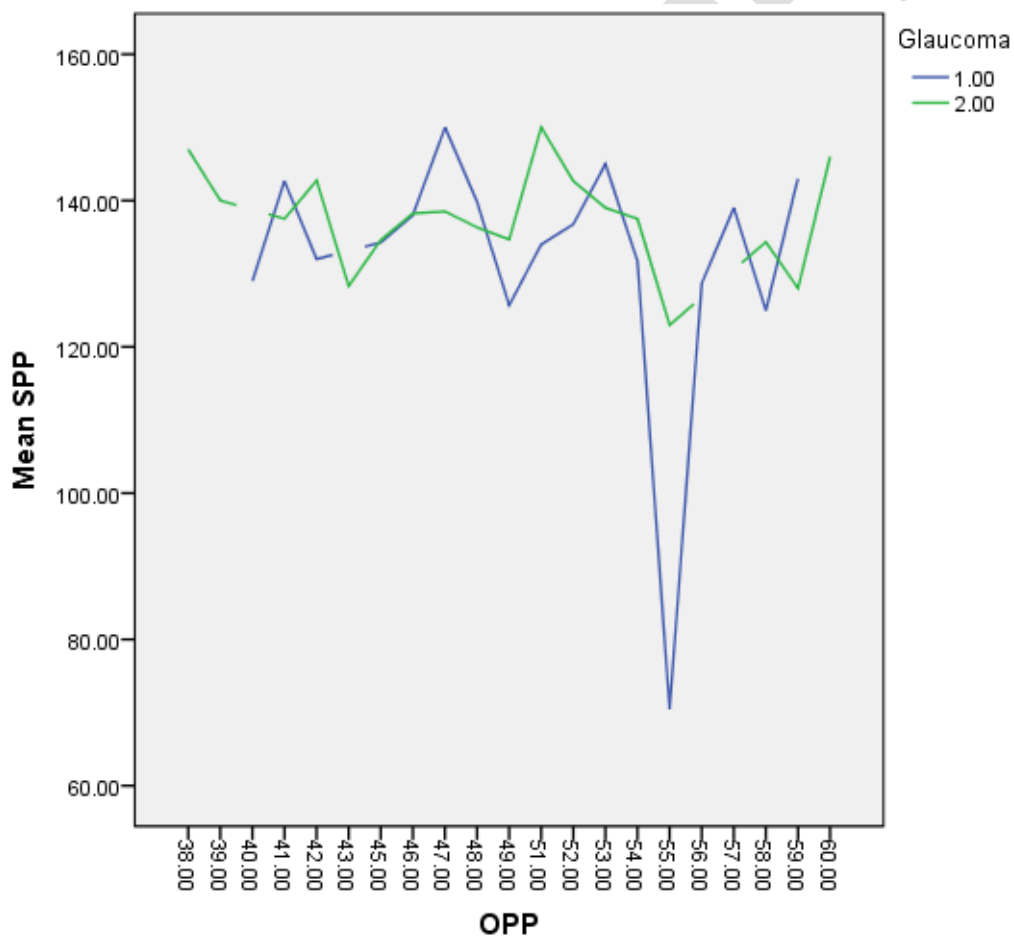


Figure – 2 Correlation of SBP and OPP

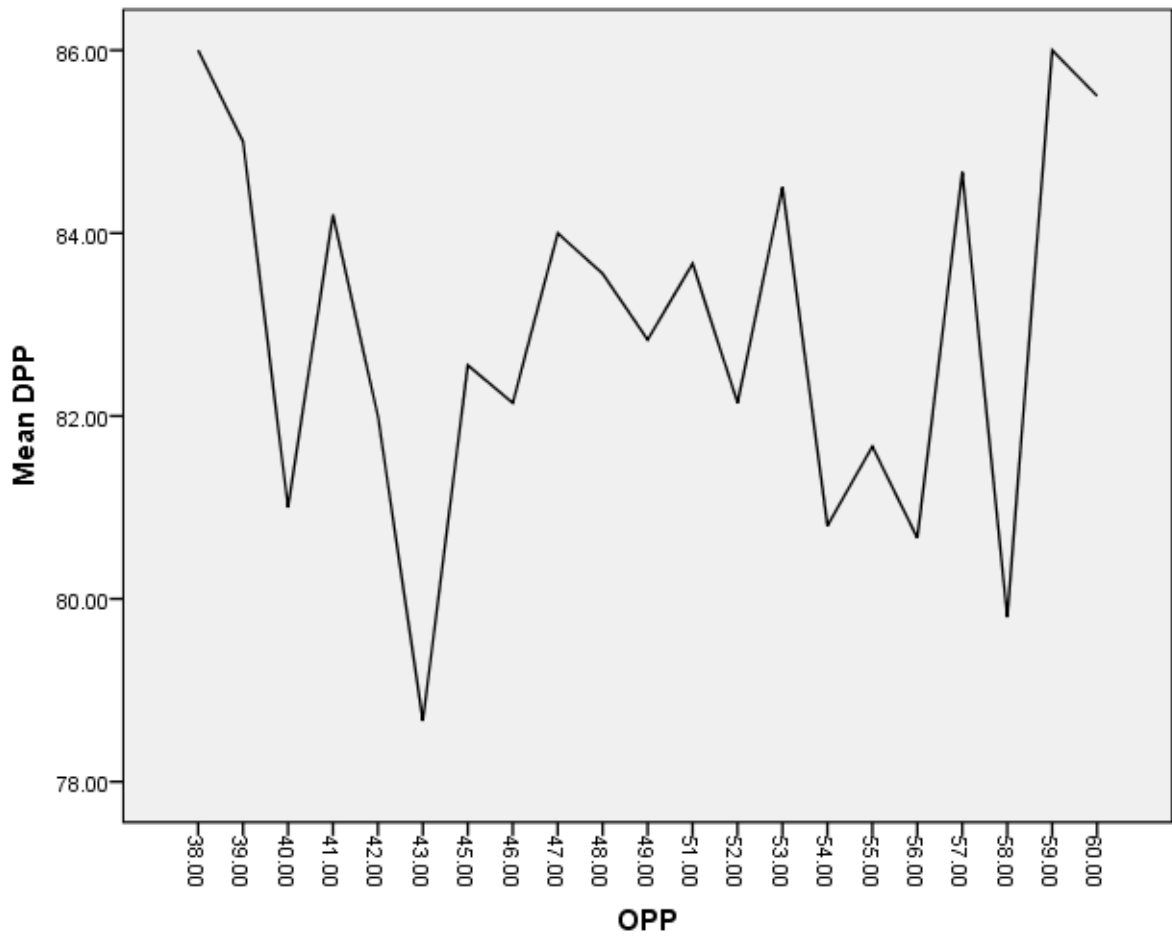


Figure – 3 Correlation of DBP and OPP

Comparison of Mean DBP with and OPP shows that there was no correlation observed.

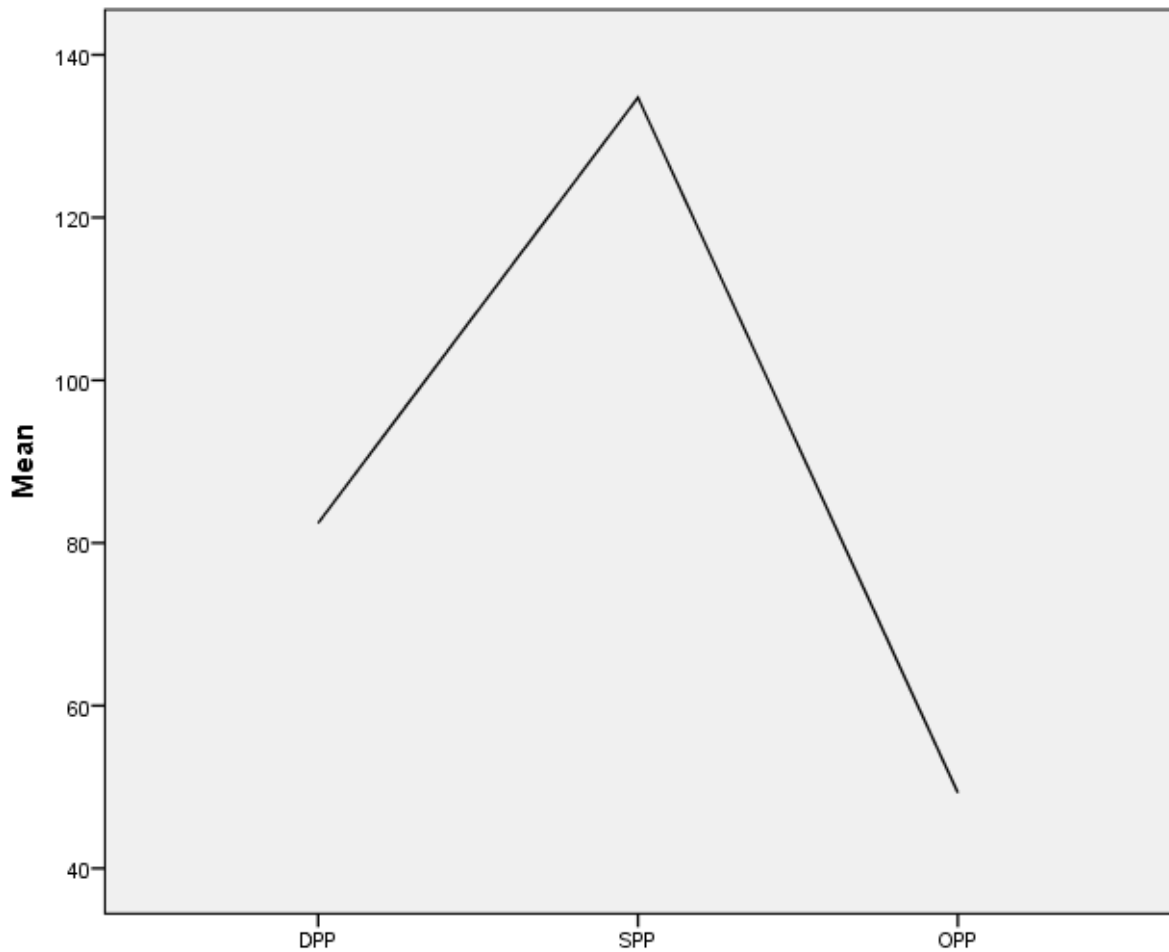


Figure – 4 The above graph shows the mean value of OPP with SBP and DBP.

DISCUSSION

Visual perfusion pressure is a measure for the close by intraocular circulation system, decided as differentiation between the objective regards for the diastolic or systolic key blood. Glaucoma is a multifactorial illness.

The connection among POAG and BP is confusing and confused. A few massive epidemiological assessments looked at this relationship, with most of the examinations delineating conflicting reports. A few tests revealed a mostly healthy glaucoma in individuals with elevated BP, while others reported an enormous link between high critical BP and POAG using cross-sectional data. Despite the way that the effect of basic hypertension on glaucoma is awesome, a couple of frameworks are proposed. In increasingly young Patients with hypertension had a guarded effect that could improve OPP. In any case, in progressively-prepared patients, this valuable outcome is lost and an increased risk of

glaucoma is seen, without a doubt, as a result of vein changes initiated by venous hypertension with upset oxygen supply and sustenance. In the case of central hypertension, continuously raised BP may develop arteriosclerosis, changes in the size of the precapillary arterioles, and a thin drop-out, inducing extended assurance from the circulatory system and, in this way, reduced perfusion. Furthermore, aggravation of the autoregulatory instruments of circulation system. In addition, ONH vascular beds with elevated BP levels may introduce decreased perfusion, which may alter any guarded effect controlled by high perfusion force. These revelations lead to the conclusion of the U-frame interaction between BP and the growth of glaucoma. The important idea is the interaction between BP, IOP and POAG. The increased IOP is known to be the greatest risk factor for the advancement of POAG. The correlation between BP and IOP should therefore be seen as a measure of the relationship among POAG and hypertension. In addition, OPP is seen as another causal factor for progression of the disease and growth.. As of late cited, when OPP fuses IOP, it is possible that the portion of disclosures assigned to OPP is just merely an assist to IOP.

Pache and Flammer[1] have Declared hypotension and, in particular, a night time drop in BP as a significant risk factor for OAG. Randomized clinical primers have suggested that low BP is associated with risk and development of glaucoma. Higher SBP in the Early Manifest Glaucoma Trial was associated with faster OAG development in patients with lower IOP design[2]. Nonetheless, this J-shape relationship between systolic and diastolic BP and IOP may be congested by antihypertensive care status, as treated or overtreated hypertensive patients may have a normal or low BP but may have improved POAG capacity.. In the Thessaloniki Eye Study[3], low DOPP was associated with an increased risk of POAG in subjects receiving antihypertensive treatment.

CONCLUSION

In the Baltimore Eye Report, a DOPP of less than 35 mmHg was correlated with a critical contribution to the strength of glaucoma. Study in Egna-Neumarkt[5 The inescapability of glaucoma decreased consistently with extended DOPP, but no association with either systolic or mean OPP was found.. As far as the relationship between BP and glaucoma is concerned, late-night hypotension can reduce the development of visual field difficulties in glaucoma patients.[6,7]. Precisely when the sunset of BP matches the IOP increase, an extensive OPP decline is thought to result in an unexpected attack that increases the threat of infection[8]. DOPP is particularly useful in displaying the lowest OPP values and is seen as a free risk

factor for OAGs. A continuous report suggests that evening BP could be a modifiable risk factor for the truth and growth of glaucoma. [9].

Nighttime hypotension is mainly due to relaxation, potentially inferable from thoughtful withdrawal. However, physiological nighttime hypotension is seen as a defensive instrument during rest; thus, the false guideline of the evening time BP should be considered with caution.

Ethical clearance- No ethical clearance was necessary for this research work

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