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Observation of Intra Ocular Pressure Spike Post Nd-Yag Laser Capsulotomy Using Nct & Gat

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ABSTRACT
A gradual decrease in vision in patients who underwent cataract surgery a few years previously is commonly caused by a condition called posterior capsular opacification(PCO) for which the safest treatment is Nd-YAG capsulotomy according to the current guidelines. Although the complications are least following this procedure the most commonest is the rise in intra ocular pressure(IOP). In this study we observed the IOP rise following Nd - YAG capsulotomy over a short period of six hours to observe the eyes natural response to rise in IOP and its physiological adaptation in controlling the IOP by its self without any medical intervention.This IOP measurement was done using two different methods.A contact method and another the non contact to also compare the reliability of IOP measurements between the two methods.

RESULTS:
In all the 85 patients eyes (32 males 68 females) who underwent Nd- YAG capsulotomy were taken up for this study and the variation of intra ocular pressure following the procedure was observed and the following findings were noted. Among 85 eyes 51 were Left eyes and 49 were Right eyes.
It was observed that the mean Intra ocular pressure (IOP) at the first hour following the procedure showed mean of 16.41 mmHg to the IOP before the procedure which showed mean of 13.65 mmHg $\pm$2.56 mmHg. Following which the mean IOP at the 2nd hour was 18.31mmHg $\pm$7.34 mmHg. The 3rd hour gave 18.82 mmHg $\pm$ 8.00mmHg and 6th hour 17.32 mmHg $\pm$8.64 mmHg.
The rise in IOP begins at the 2nd hour 18.31mmHg $\pm$7.34 mmHg and peaks at the 3rd hour 18.82 mmHg $\pm$ 8.00mmHg and then begins to fall by the 6th hour to 17.32 $\pm$8.64 mmHg.
Using Goldmanns Applanation Tonometer (GAT). It was observed that the mean IOP before the laser procedure was 14.01 mmHg $\pm$3.12 mmHg. Following which at first hour was 18.03 $\pm$5.57 mmHg, Second hour was 20.10 $\pm$7.46 mmHg and at 3rd hour 20.32 $\pm$7.97 mmHg after which at the 6th hour showed 18.58 $\pm$7.90 mmHg.
we are also able to monitor the increase in IOP at the 2nd hour 20.10 $\pm$7.46 mmHg with IOP peaking at the 3rd hour 20.32 $\pm$7.97 mmHg and a fall at the 6th hour 18.58 $\pm$7.90 mmHg
With the above observations it can be noted that when IOP rises, NCT tends to show a lower set of readings when compared to GAT's level of readings.
It was observed that among the 85 patients, 7 patients showed IOP levels more than 30mmHg for which medical intervention had to be done.

BACKROUND
METHODS
A prospective observational study was carried out in the department of Ophthalmology at a tertiary health care hospital, Chennai, Tamil Nadu over a Period of Two Years 2021 -2023 after obtaining ethical clearance.

CRITERIA FOR INCLUSION:
1. All Patients with Posterior Capsule Opacification after undergoing Posterior Chamber Intra Ocular Lens Implantation irrespective whether operated in CHRI or elsewhere.
2. All Uneventful & Uncomplicated Cataract Surgeries that eventually develop Posterior Capsule Opacification.
3. Both Male and Female patients.
4. All patients without any underlying systemic Diseases.
5. All patients more than 25 years of age.

CRITERIA FOR EXCLUSION:

1. All known Patients with Glaucoma
2.All Patients on Steroids Topical/Systemic for any other Ocular or Systemic Conditions
3.All Patients who had Complicated Cataract Surgery with Posterior Capsule Opacification

PROCEDURE

All the study subjects had thorough ophthalmic examination using slit –lamp biomicroscopy of the anterior segment and after mydriasis with 1% tropicamide and 5% phenylephrine eye drops, patients with clinically significant Posterior capsular opacification were adviced Nd – YAG capsulotomy after explaining the procedure. All patients who were willing, an informed consent was taken and subjected to the procedure.

All patients underwent Intra ocular pressure measurement first by using NIDEK's Noncontact tonometer (NT2000) followed by Goldmanns applanation tonometer by Appasamy on the Haag streit slit lamp.

Applanation tonometery was done by anaesthetizing the eye by instilling 0.5% propracaine eye drops and then minimal staining by using fluorescein strip, then for measuring the IOP the slit beam should be made to shine on the tonometer head. A blue filter is used to produce a blue beam which is wide as possible. The procedure is explained to the patient and is made to sit and asked to look straight ahead by fixing the gaze perfectly still with both eyes wide open. The tonometer head should be perpendicular to the eye. Then the tonometer is moved forward slowly until the prism rests gently on the centre of the pateints cornea. With the other hand, the calibrated dial on the tonometer is turned clockwise until the two fluorescein semi-circles in the prism head are seen to meet and form a horizontal 'S' shape.

The patient is prepared for Nd-Yag capsulotomy by applying a drop of topical local anesthetic propracaine 0.5% is applied to the cornea immediately before beginning the procedure. The patient must be seated comfortably after adjusting the stool, table and chin height accordingly.

A strap is passed from behind the patient's head to avoid the tendency to move back during the course of laser treatment. Appasamy Nd- Yag Laser machine was used in which minimal amount of energy that is necessary to rupture the capsule is initially set. Shots were placed across the tension lines resulting in largest opening per pulse. The main strategy is to create a cruciate opening, by beginning the capsulotomy at the periphery around 12'o clock and progressing downwards towards 6 o' clock position. The technique to avoid intra ocular lens marks is to intentionally focus the laser posterior to the capsule.

Following the laser procedure the patient was asked to wait in the out patient department for IOP monitoring. The IOP was measured at intervals of

1st hour, 2nd hour, 3rd hour and the 6th hour using Noncontact tonometer and Goldmann's applanation tonometer.

INTRODUCTION

Posterior capsular opacification is the most common long term postoperative complication encountered everyday. Many methods have been employed to reduce the incidence of PCO with the advent of better IOL designs to improved micro surgical techniques in cataract surgery.

The best and the most commonly used mode of treatment for PCO is Nd – YAG laser.

Nd – Yag capsulotomy is the preffered choice of treatment due to the number of advantages like non invasive and safe procedure. But each procedure has its disadvantages and one such complication is the rise of intra ocular pressure following Nd –YAG capsulotomy.

A Rise in IOP after Nd-Yag Cpasulotomy is a known entity for which Topical Anti-Glaucoma treatment is given as a routine Prophylactically for one week. But there is no Literature after 1985 to exactly tell us when the IOP Raises and Peaks. So our study aims at finding out the raise in IOP during the first six hours following Nd-Yag Capsulotomy.

POSTERIOR CAPSULAR OPACIFICATION OR AFTER CATARACT

Posterior capsule opacification/ after cataract is the most common late complication following uncomplicated ECCE.[1]

INCIDENCE

Initially it was 18 - 50% many years back but over the years the incidence has drastically reduced due to better micro surgical techniques and improved Intra ocular Lens designs.

PATHOGENESIS[2]

Caused by proliferation of anterior lens epithelial cells onto the posterior capsule.
Anterior capsular epithelium, Equitorial lens bow & retained cortical matter are common sources of PCO

TYPES CLINICALLY OPACIFICATION OF AN INITIALLY CLEAR POSTERIOR CAPSULE OCCURS IN TWO FORMS [3]

Fibrosis in grey white band or plaque presents in early post operative period. This originates from anterior Epithelial cells that have migrated & undergone fibrous metaplasia usually mild but can cause significant wrinkling of posterior capsule and visual deterioration if it becomes thick.
Pearl eye of PCO arises from Equitorial bow cells which migrate and from small Elschnigs pearl and bladder cells. They occur months to years after cataract surgery and also capable of fibrous metaplasia.

PREVENTION OF PCO[4]
Polishing
Vaccum cleaning of PC
Various lens designs such as laser ridge & convex surface posteriorly act as a mechanical barriers to the formation of elsching pearls.

METHODS OF TREATMENT OF PCO[5]
Removal of PCO (After Cataract) is mainly done for optical reasons. The following are the possible methods that can be followed for its removal:
1.Simple dissection for a relatively thin membrane
2.Scissors section for thicker membrane
3.Removal of portion of the membrane through large limbal incision for very thick membrane
4.Pars plana membranectomy
5.Aspiration of Elschnigs pearls
6.Nd-YAG laser posterior capsulotomy

POSTERIOR CAPSULOTOMY
Posterior capsulotomy in the treatment of posterior capsular opacification following ECCE is one of the most frequent uses of Nd-YAG LASER
Nd-YAG LASER has surpassed all other methods of treating PCO.

ADVANTAGES
It is convenient & non invasive
Can be performed as an outpatient procedure under topical anesthesia
Chances of infections are greatly reduced

TREATMENT OF POSTERIOR CAPSULOTOMY BY Nd-YAG LASER
PREOPERATIVE ASSESMENT:
All the patients require a complete ophthalmic history and examination before treatment
A single most reliable technique for assessing and capsular opacity is by direct ophthalmoscopy.
The laser interferometer and the potential acuity meter should penetrate mild to moderate capsular opacity & indicate macular function.
Both instruments may have a false positive acuity prediction in the presence of cystoid macular odema.
The purpose and nature of the procedure should be explained to the patient and informed consent obtained before hand.
Apraclonidine or beta blocking agent should be administered in the eye 1 hour prior to and immediately upon completion of Nd-YAG LASER posterior capsulotomy to minimize a post operative intraocular pressure rise.
Dilatation of pupil facilitates visualization of the capsule over a broad expanse.

PROCEDURE:[6]
A drop of topical local anesthetic is applied to the cornea immediately before beginning the procedure.
The patient must be seated comfortably with adjusted stool, table and chin height accordingly.

A strap is passed from behind the patient's head to counteract the tendency of to move back during the course of treatment.
To facilitate accurate focusing and improve the laser beam optics by stabilizing the eye, a contact lens like Central Abraham lens may be used.
A minimal amount of energy necessary to obtain a rupture of the capsule is desirable.
Shots are placed across the tension lines resulting in largest opening per pulse.
The main strategy is to create a cruciate opening, by beginning the capsulotomy in the 12o clock periphery.
It is of advantage in detecting the intra ocular lens marking in an area away from visual axis.
A technique to avoid intra ocular lens marks is to intentionally focus the laser posterior to the capsule breakdown on the anterior vitreous.

CAPSULOTOMY SIZE

The size should be as large as the pupil in ambient light.
A small opening is made in patients with a high risk of retinal detachment.
Capsulotomies may also enlarge post operatively.
Cappone and colleagues demonstrated that capsulotomies may increase in mean area by 32% within 6 weeks.
It is also found that the capsular enlarges towards sphericity with capsular tag retraction of myofibroblastic lens epithelial cells or by intra ocular lens haptics or both.
A capsule with residual haze not only impairs vision but also produces glare.
Stinert demonstrated that glare and haze continue to be a problem with 1 – 2mm capsular opening, decrease with a 3mm opening and fully resolve only with a 4mm capsular opening.

COMPLICATIONS

Complications of Nd-YAG LASER posterior capsulotomy causing decreased vision are common but also include elevated intra ocular pressure, Cystoid macular edema, Iritis, Retinal detachment, IOL tilt, Endophthalmitis, Vitritis, Macular holes, Corneal damage.

ELEVATED INTRA OCULAR PRESSURE[7]

Is the commonest complication although usually transient.
The frequency of intra ocular pressure elevations greater than 10mmHg have been variably observed in 15% to 67% of eyes.
It has been shown to be a reduced facility for aqueous humour outflow due to capsular debris, acute inflammatory cells and the shock wave damage to trabecular meshwork.

CYSTIOD MACULAR EDEMA[8]

It has been reported to develop in 0.55% to 2.5% of eyes following Nd-YAG LASER posterior capsulotomy.
This may occur between 3 weeks to 11 months following the procedure.
Stark and his colleagues have concluded that risks of cystoid macular edema colud be lowered by longer interval between extra capsular cataract extraction and laser capsulotomy, although other studies have not confirmed it.

INTRA OCULAR LENS DAMAGE[9]

Pitting of intraocular lenses occur in 15% to 33% of eyes during Nd-YAG LASER posterior capsulotomy.
Pitting is usually not visually significant.
Glass intra ocular lenses may be fractured by Nd-Yag LASER.
Polymethylmetha acrylate intra ocular lenses sustain cracks & central defects with fractures.
Lens designed with a ridge the posterior capsule from the intra ocular lens sustain less damage than lenses with convex posterior surface.

ENDOPHTHALMITIS[10]

Many cases of Proponiobacterium acenes endophthalmitis have been reported following Nd-Yag LASER posterior capsulotomy.
Eyes following laser capsulotomy developed significant uveitis and loss of vision.
The organisms sequestrated in the capsule reach the vitreous into endophthalmitis following capsulotomy.

RETINAL DETACHMENT[11]

Incidences are upto 3.6%

Retinal detachments may occur early after the laser capsulotomy or more than a year later.

MECHANISM[12]

Risk factors for Retinal detachment includes

Anterior prolapse of vitreous gel through capsulotomy.

Secondary vitreous changes associated with opening the posterior lens capsule.

Direct damage to vitreous gel due to surgery.

However vitreous prolapse through a capsulotomy does not occur in eyes with posterior chamber IOL.

Osterlin proposed that an opening in the posterior capsule opens the barrier and the hyaluronic acid enters into the anterior chamber resulting in instability of vitreous causing detachment and other associated complications like retinal tears and macular hole formation.

Winslow et al stated that YAG laser retinal complications occur merely from opening of posterior capsule & not directly due to Nd-YAG Laser.

Mechanisms specific to YAG Laser like vitreous liquefaction, direct retinal damage & acoustic transients which may be related to retinal detachment play a secondary role.

The shock wave effects of Nd YAG Laser bursts may also contribute to the collapse of the gel with sudden posterior vitreous detachment and if pre existing syneresis, retina detachment progresses rapidly after the capsulotomy.

Myopia, a previous history of retinal detachment on the other eye are additional risk factors for retinal detachment following capsulotomy.

INTRA OCULAR PRESSURE

It is the pressure exerted by the fluid from within the eye.

TONOMETERS

A clinical technique for measuring IOP is done by tonometers. The basic concept in measuring the IOP is related by the force responsible for the deformation. The two basic types of tonometers depending on the shape of deformation is Indentation and Applanation.

INDENTATION TONOMETERS

In this measurement is done by the extent of corneal indentation by a plunger of known weight is measured and the results are obtained by using comparison tables based on empirical data to estimate the IOP. The Schiotz tonometer is based on this principle.

APPLANATION TONOMETER

In this the shape of deformation formed is a simple flattening and since the shape is constant, its relationship to the IOP can be derived by mathematical calculation.

GOLDMANN APPLANATION [13]

This is based on “Imbert Ficks Law” which states that an external force (W) against a sphere equals the pressure in the sphere(Pt) multiplied by the area flattened by the external force(A)

$W = Pt \times A$

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NON CONTACT TONOMETER[14]

This type of tonometer uses a puff of air to deform the cornea along with the measurement of the time and force of the air puff that is required to create a standard amount of deformation.

MATERIALS AND METHODS

STUDY DESIGN

A prospective observational study

METHODOLOGY

A prospective observational study was carried out in the department of Ophthalmology at Chettinad Health City and Research Institute, Chennai,Tamil Nadu over a Period of Two Years 2021 -2023 after obtaining ethical clearance.

SOURCE OF DATA

A total of 85 patients eyes were selected who fulfilled the inclusion criteria were included in the study

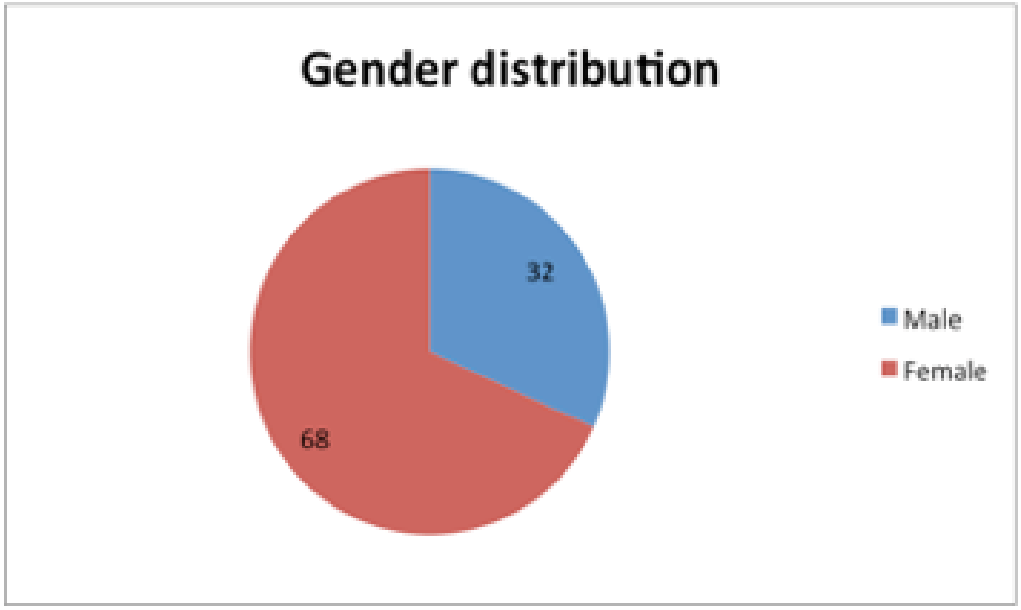
STATISTICAL METHODS

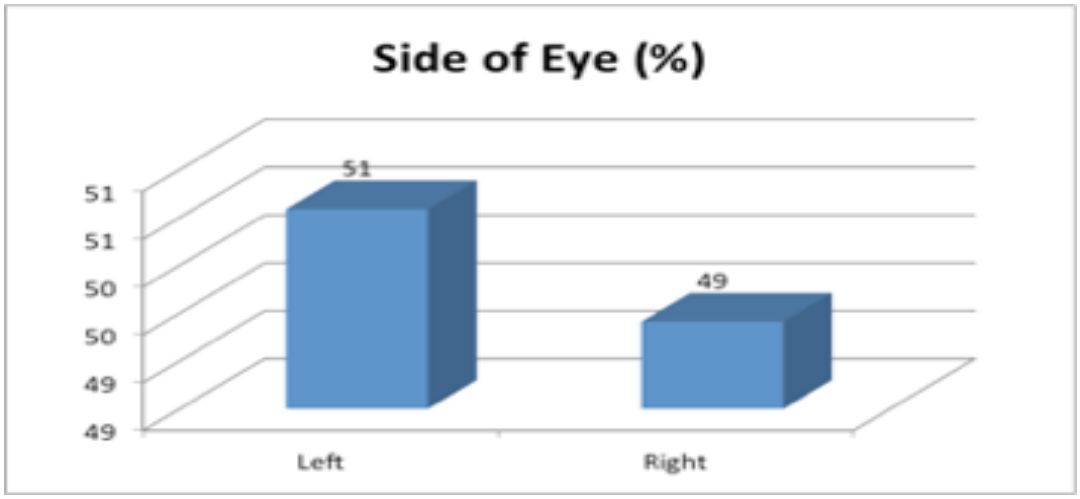
STATISTICAL ANALYSIS

All the continuous variables were assessed for the normality using Shapiro- wilks test. The variables were normally distributed and was expressed as Mean ±SD otherwise median (Inter quartile range). All the categorical variables were expressed either as percentage or proportions. Paired " t " test was used to compare continuous variables before and after Nd- YAG capsulotomy was done. Pearson correlation coefficient was computed between binary variables and also assessed the significance. Scatter plot was drawn to identify the association of binary variables. Comparison of categorical variables were done by either chi square test or Fishers exact test based on the number of observations. Error bar drawn to identify the mean difference of the IOP at different time points. Data entry was done in MS Excel spread sheet, data analysis and validation was carried out by SPSS version 11.0. All the p-values less than 0.005 was considered as statistically significant.

OBSERVATION & RESULTS

In all the 85 patients eyes (32 males 68 females) who underwent Nd- YAG capsulotomy were taken up for this study and the variation of intra ocular pressure following the procedure was observed and the following findings were noted. Among 85 eyes 51 were Left eyes and 49 were Right eyes.





Paired Samples Statistics by using NON CONTACT TONOMETER

	Mean	Std. Deviation	P value	Significance
BEFORE LASER (NCT)	13.6588	2.56140	.000	S
1sthourNCT	16.4118	5.02445		
BEFORE LASER (NCT)	13.6588	2.56140	.000	S
2ndhourNCT	18.3176	7.34557		
BEFORE LASER (NCT)	13.6588	2.56140	.000	S
3rdhourNCT	18.8235	8.00770		
BEFORE LASER (NCT)	13.6588	2.56140	.000	S
6thhourNCT	17.3294	8.64152		
1sthourNCT	16.4118	5.02445	.000	S
2ndhourNCT	18.3176	7.34557		
1sthourNCT	16.4118	5.02445	.000	S
3rdhourNCT	18.8235	8.00770		
1sthourNCT	16.4118	5.02445	.154	NS
6thhourNCT	17.3294	8.64152		
2ndhourNCT	18.3176	7.34557	.126	NS

3rdhourNCT	18.8235	8.00770		
2ndhourNCT	18.3176	7.34557	.055	NS
6thhourNCT	17.3294	8.64152		
3rdhourNCT	18.8235	8.00770	.000	S
6thhourNCT	17.3294	8.64152		

With the above paired samples using Non contact tonometer (NCT), it was observed that the mean Intra ocular pressure (IOP) at the first hour following the procedure showed mean of 16.41 mmHg to the IOP before the procedure which showed mean of 13.65 mmHg ±2.56 mmHg. Following which the mean IOP at the 2nd hour was 18.31mmHg ±7.34 mmHg. The 3rd hour gave 18.82 mmHg ± 8.00mmHg and 6th hour 17.32 mmHg ±8.64 mmHg.

The above table also shows the rise in IOP begins at the 2nd hour 18.31mmHg ±7.34 mmHg and peaks at the 3rd hour 18.82 mmHg ± 8.00mmHg and then begins to fall by the 6th hour to 17.32 ±8.64 mmHg.

	Mean	**Std. Deviation**	**P value**	**Significance**
BEFORE LASER (GAT)	14.0118	3.12629	.000	Significant
1sthour GAT	18.0353	5.57299		
BEFORE LASER (GAT)	14.0118	3.12629	.000	Significant
2ndhour GAT	20.1059	7.46424		
BEFORE LASER (GAT)	14.0118	3.12629	.000	Significant
3rdhour GAT	20.3294	7.97524		
BEFORE LASER (GAT)	14.0118	3.12629	.000	Significant
6thhour GAT	18.5882	7.90463		
1sthour GAT	18.0353	5.57299	.000	Significant
2ndhour GAT	20.1059	7.46424		
1sthour GAT	18.0353	5.57299	.000	Significant
3rdhour GAT	20.3294	7.97524		
1sthour GAT	18.0353	5.57299	.316	Not significant
6thhour GAT	18.5882	7.90463		
2ndhour GAT	20.1059	7.46424	.491	Not significant

3rdhour GAT	20.3294	7.97524		
2ndhour GAT	20.1059	7.46424	.002	Not significant
6thhour GAT	18.5882	7.90463		
3rdhour GAT	20.3294	7.97524	.000	Significant
6thhour GAT	18.5882	7.90463		

The above paired samples is compared using Goldmanns Applanation Tonometer (GAT). It was observed that the mean IOP before the laser procedure was 14.01 mmHg ±3.12 mmHg. Following which at first hour was 18.03 ±5.57 mmHg, Second hour was 20.10 ±7.46 mmHg and at 3rd hour 20.32 ±7.97 mmHg after which at the 6th hour showed 18.58 ±7.90 mmHg.

With the above tables we are also able to monitor the increase in IOP at the 2nd hour 20.10 ± 7.46 mmHg with IOP peaking at the 3rd hour 20.32 ±7.97 mmHg and a fall at the 6th hour 18.58 ±7.90 mmHg.

NCT & GAT

	Mean	**Std. Deviation**	**P value**	**Significance**
BEFORE Laser (NCT)	13.6588	2.56140	.086	Not significant
BEFORE Laser (GAT)	14.0118	3.12629		
1sthourNCT	16.4118	5.02445	.000	Significant
1sthour GAT	18.0353	5.57299		
2ndhourNCT	18.3176	7.34557	.000	Significant
2ndhour GAT	20.1059	7.46424		
3rdhourNCT	18.8235	8.00770	.000	Significant
3rdhour GAT	20.3294	7.97524		
6thhourNCT	17.3294	8.64152	.000	Significant
6thhour GAT	18.5882	7.90463		

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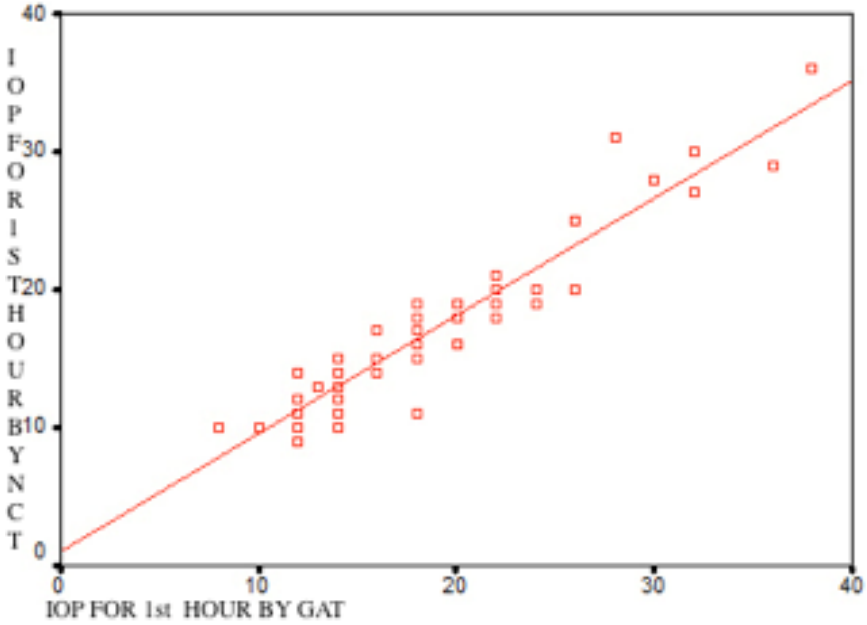
The above paired samples show the comparison between intra ocular pressures using NCT and the GAT. The baseline IOP before the Nd- Yag laser procedure by NCT was 13.65 ± 2.56 mmHg when compared to GAT 14.01 ±3.12 mmHg. At the 1st hour IOP by NCT was 16.41 ±5.02mmHg and GAT was 18.03 ±5.57 mmHg which does not show much difference between the two tonometer's. Whereas IOP readings at the 3rd hour by NCT showed 18.82 ±8.00 mmHg when compared to GAT's reading of 20.32 ± 7.97mmHg and 6th hour NCT 17.32 ±8.64mmHg with GAT's 18.58 ±7.90mmHg. With the above observations it can be noted that when IOP rises, NCT tends to show a lower set of readings when compared to GAT's level of readings.

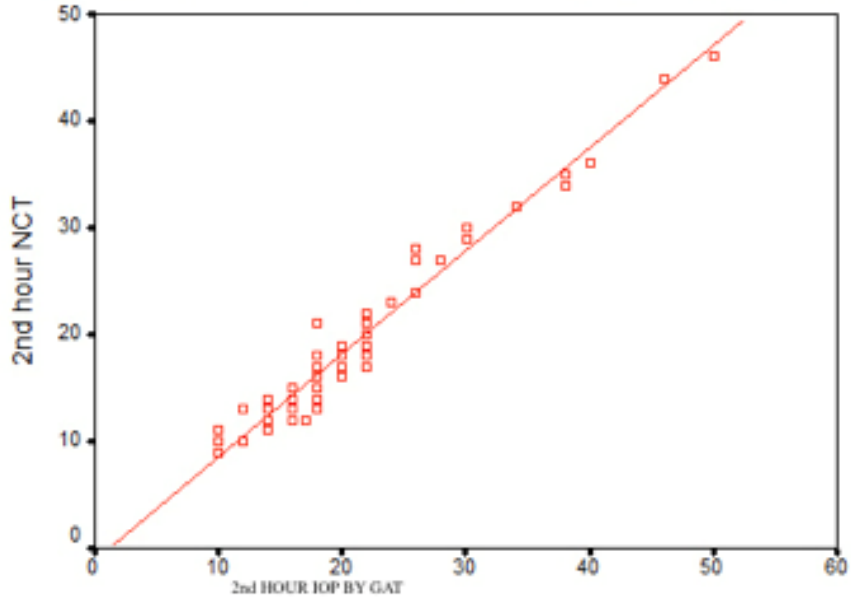
It was observed that among the 85 patients, 7 patients showed IOP levels more than 30mmHg for which medical intervention had to be done.

SCATTER PLOT SHOWING IOP FOR THE 1st HOUR BETWEEN NCT & GAT



The above scatter plot between the IOP measurements by NCT and GAT taken at the first hour shows a significant positive correlation ($r = .800$, $p < 0.05$)

SCATTER PLOT FOR 2ND HOUR IOP BY NCT AND GAT



The second hour scatter plot shows a positive linear relationship of the IOP between both NCT and GAT showing a cluster of points

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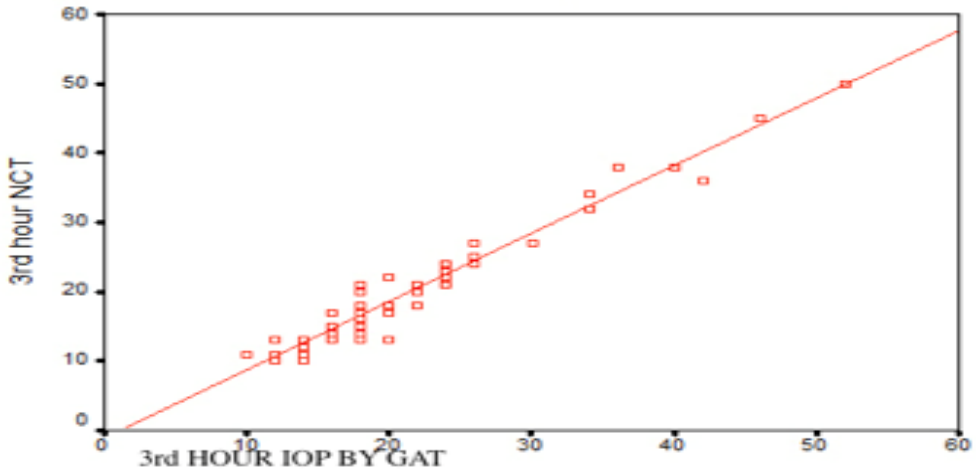
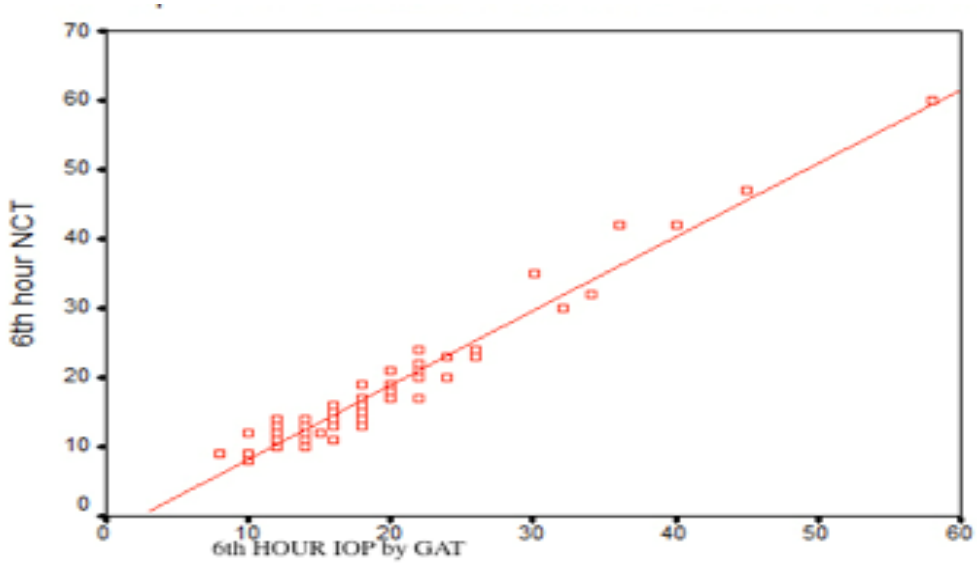
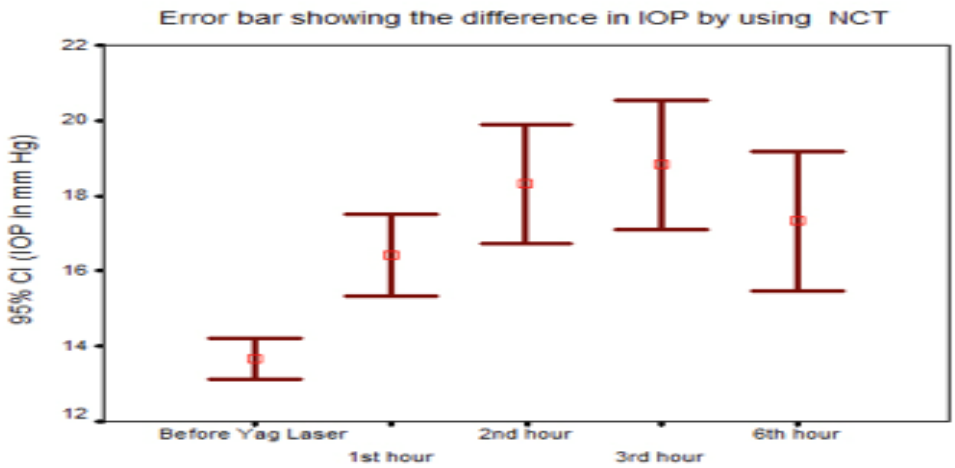
SCATTER PLOT FOR 3RD HOUR BY NCT AND GAT



SCATTER PLOT FOR 6TH HOUR BY NCT and GAT



The above plot showing the association of IOP readings by NCT and GAT at 6th hour. In comparison with other time points, IOP readings are less associated between each other.



The above error bar graph shows the rise in IOP at the second hour followed by a peak at the third hour and a decline of IOP by the sixth hour by using the NCT.

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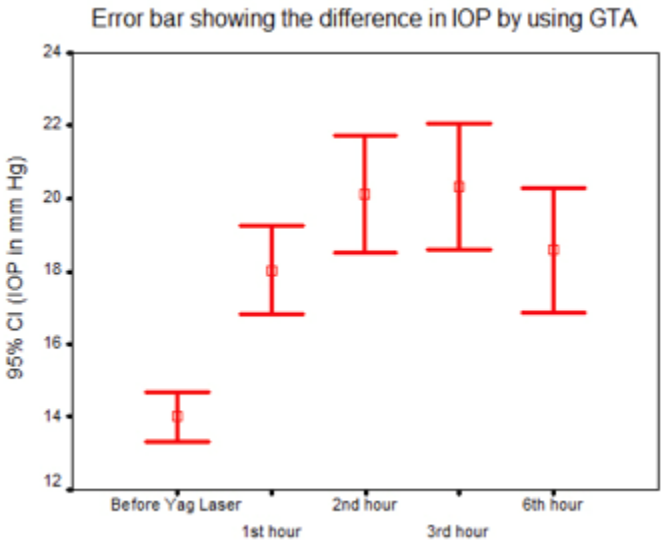

The above error bar graph shows the difference in IOP values using the GAT at the different times of following capsulotomy by Nd: YAG laser similar to the findings of NCT.

DISCUSSION

As we know that IOP rises following Nd: YAG posterior capsulotomy, but the exact time at which the IOP rises is not known properly. The above results show that the rise in IOP following posterior capsulotomy begins at the second hour of about 18.31mmHg ±7.34 mmHg from baseline by NCT while GAT gave 20.10 ±7.46 mmHg. The third hour IOP readings showed 18.82 mmHg ± 8.00mmHg with the NCT and GAT giving readings of 20.32 ±7.97 mmHg, indicating a rise at the third hour following which there is a decline in IOP within six hours of the procedure by which NCT showed values of 17.32 ±8.64 mmHg and GAT 18.58 ±7.90 mmHg.
The following are similar studies done previously;

Solomvic AR et al reported fourty one percent eyes developed an intraocular pressure greater than 30 mmHg and 14% greater than 40mmHg by appplanation tonometry preoperatively and hourly for the first four postoperative hours and first post operative day in 66 eyes after Nd: YAG laser posterior capsulotomy.

Richter CU et al reported that mean intraocular pressure peaked by three hours with a mean increase in 13mmHg, remained elevated by 5mmHg at 24 hours but returned to baseline by one week in 13 eyes. All the patients who eventually demonstrated a greater than or equal to 5mmHg at one hour.

The above studies shows that the rise in IOP begins at the second hour and peaks at the third hour following the procedure and slowly begins to decline in the consecutive hours gradually to reach the baseline.

Pande AS et al compared NCT with GAT in 300 patients found that NCT readings produce higher values compared to GAT , the readings were on the higher side on lower GAT readings and concluded that NCT should not be used for diagnostic purposes but only for a screening tool.

CONCLUSION

All the patients treated for PCO with Nd: YAG capsulotomy showed a minimal increase in IOP following the procedure.

There was no significant rise in IOP at the first hour after the capsulotomy.

A rise in the IOP was noted to begin at the second hour following capsulotomy and peaked at the third hour indicating the need to start instilling IOP lowering eye drops at the second hour if neccesary

Within the sixth hour the IOP begins to decline towards the baseline reaching near normal values in majority of the patients.

Seven patients were noted to show IOP rise of more than 30mmHg at the third hour indicating the need to monitor the patients IOP post capsulotomy and to educate the patient about the possible side effects of the procedure and the need to instill IOP lowering eye drops.

IOP returning to the baseline in most patients makes us think whether we should give IOP lowering eyedrops as prophylaxis.
The rise in intraocular pressure could also have a direct impact on the number of laser shots used in the capsulotomy, which is the only factor not included in this study.

IOP measurement by NCT showed similar values with GAT at the baseline, whereas a lower value was recorded at the second and third hours when compared to the GAT which gave values at a slightly higher level.

Thus it should be noted, that at lower values of IOP, NCT and GAT give similar values, but IOP values greater than 25mmHg NCT tends to give a lower reading when compared to GAT.
This indicates that at higher values of IOP, GAT is a more reliable tool and therefore continues to be the gold standard method for IOP measurement for diagnostic purposes and NCT can only be considered for screening purposes

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