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RESEARCH ARTICLE

CLINICAL STUDY OF INTRAOCULAR PRESSURE CHANGESFOLLOWING ND-YAG LASER IRIDOTOMY IN ANGLE CLOSURE DISEASE

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Key words:-
Primaryangleclosuredisease, Laseriridotomy, Intraocularpressurechangeson, Gonioscopy

Abstract

Background: Glaucoma is the leading cause of irreversible blindness worldwide and is second only to cataracts asthemost common cause of blindness overall (14%). As the mainstay of treatment is early diagnosisand prevention of progression1.According to an estimate in the year 2006, there would be 60.5million people worldwide with open-angleglaucoma (OAG) andangle closure glaucoma (ACG)in 2010, increasingto79.6 million by 20202.Primary angleclosureglaucoma (PACG)is acommon form ofglaucoma in South India.The overall prevalence of primary angle closures(PACandprimaryangle-closureglaucoma)insouthernIndiais1.58%.[3]Laserperipheraliridotomy doneprophylactically in primary angle closure suspects. The purpose of laser peripheraliridotomy is to preservevisual function and maintain quality of life by preventing Acute angleclosure crisis/Primary angle closure glaucoma from developing[4].Even done prophylactically inthe felloweyetoprevent anacute attackin a patient havingprimaryangle closureglaucoma. Laser peripheral iridotomy is a non-surgical, less expensive procedure. It is a cost effective-singleone-time intervention, as there ispoor compliance of patients in developing countries likeIndiaforfollow-up.

Evenpatientswhoareoncertainmedications(likedecongestants, motion sicknessmedication,and anticholinergicagents)areatriskofAcuteangleclosure crisis[5].It is essential to evaluate the response to laser iridotomy by studying changes inanteriorsegment morphology. Thesechanges can bequantified bygonioscopyand biometry[6]

Objectives:

1.Tostudytheeffectivenessoflaseriridotomyasaprimarytherapyforprimary angleclosuredisease.

2.TostudythevariationinIOPchangesfollowingND-YAGlaser iridotomy.

Studydesign: Prospective non-randomized interventional hospital-based study.

Methods: Thisstudyincluded60eyes of 30 patients with primary angle closure disease (PACD) requiringLaserPeripheral iridotomy. They were subjected to a detailedOphthalmic examination visual

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evaluation, and complete examinationincludingvisualacuitymeasurementbyApplanationtonometer,peripheralanteriorchamberplusangleassessmentbyVan-Herick,andgonioscopyusinga Slitlamp, measurementofIntraocularpressurebeforeandafterLaserperipheraliridotomyandfollowed-upforaperiod of 6 months.
Mainoutcomemeasures: Intraocularpressure(IOP) byApplanation tonometer.
Results: This study included 60 eyes of 30 patients. Most patients (36.7%) belongedtotheagegroupof51-60yearsand61-70years (Mean) respectively.19(63.3%)patients were female and 11 (36.7%) were male patients. A family history of glaucomawaspresentin4(13.33%)patients. Outof30patients, 7(23.33%)haddiabetes,7(23.33%)had hypertension and 3(10%)had both. The study showeda statistically significant decrease in IOP(P 0.0001) post iridotomyafter4 weeks (21.10±9.51mmHgVs 13.83±3.22mmHg),(P <0.05)
Interpretation Andconclusion: This study investigated the immediate IOP change and risk factors forIOPspikesafterlasertreatmentinPACGtreatedbyprophylacticLPI.Laserperipheral iridotomy can cause an acute and (usually) transient posttreatment rise inintraocular pressure (IOP) in some patients. To blunt IOP spikes in vulnerable casesantiglaucomamedicationscanbeaddedandPIenhancement(retreatment)canbedone. More laser energy used and shallower central anterior chamber depth werefound to be risk factors for IOP elevation of 8 mmHg or more beyond baseline afterLPI.

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Introduction:-

The anterior chamber is bounded anteriorly by the back of thecornea and posteriorly by the iris and part of the ciliary body. The angle of the anteriorchamberis its peripheralrecess,formedmainlybythe trabecular meshwork.

The angle of the anterior chamber plays an important role in the process ofaqueousdrainage.Clinically,theanglestructurescanbevisualizedbygonioscopicexamination.

Startingfromposteriortoanterior,theanglerecessisformedbyt h e followingstructures.[13]

1.Theciliaryband

It is the posterior landmark in the angle recess. It is formed by the anterior-most part of the ciliary body between its attachment to the scleral spur andinsertionofthe iris.Therefore, itswidth dependsupon thelevelof irisinsertion.

2. Scleralspur

It is the posterior portion of the scleral sulcus which usually appears as aprominent line on the gonioscopy. On it are attached ciliary body posteriorly andcorneoscleralmeshworkanteriorly.

3. Trabecularmeshwork

It is seen as a band just anterior to the scleral spur. Its appearance variesconsiderablysince ithasnopigmentatbirthanddevelopspigmentwithincreasingage;therefore,withage,color variesfrom fainttodark brown.

4. Schwalbe'sline

It is a fine ridge seen just in front of the trabecular meshwork. It is formed bythe prominent end ofDescemet's membrane of the cornea. It marks theanteriorlimit ofthestructures formingthe angleof theanteriorchamber.

IntraocularPressure

Intraocular pressure (IOP) refers to the pressure exerted by intraocular fluids onthe coats of the eyeball. The normal IOP varies between 10 to 21 mmHg (mean 16+/-2.5mmHg).[20]ThenormallevelofIOPisessentiallymaintainedbyadynamicequilibriumbetweentheformationandoutflowoftheaqueoushumor.Variousfactors influencingIOP areas follows:[21]

Localfactors
Rate of formation of aqueous humor, which in turn depends uponmany factors such as permeability of ciliary capillaries and osmoticpressureof theblood.

Resistancetoaqueousoutflow.
The episcleral venous pressureincrease in the episcleral venous pressureincreasesIOP e.g. Valsalvamaneuver.

Dilatation of the pupilin patients with narrow anterior chamber angles maycause a rise in IOP owing to a relative obstruction of aqueous drainage by theperipheraliris.

(b)General factors:
1. Heredity:ItinfluencesIOP,possiblybymultifactorial modes.
Age:ThemeanIOPincreasesafter40yearsofage,possiblyduetoreducedaqueous outflow.
2.Sex:IOPisequalbetweenthesexesinages20-40years.Inolderagegroupsincreasein meanIOP with ageis greaterinfemales.
3. Diurnal variation: Usually, there is a tendency for higher IOP in themorningandlower in the evening. This has been related to diurnal variation inplasmacortisol levels.
4.Postural variations: IOP increases when changing from sitting to thesupineposition.
5. Blood pressure. As such it does not have a long-term effect on IOP.However, the prevalence of glaucoma is marginally more in hypertensivesthanthenormotensives.
6. Osmoticpressureofblood.Anincreaseinplasmaosmolarity(asoccurs after intravenousmannitol, oral glycerol, or in patients withuremia) is associated with a fall in IOP, while a reduction in plasmaosmolarity(asoccurswithwaterdrinkingprovocativetests)isassociatedwith ariseinIOP.
7.Generalanestheticsandmanyotherdrugsalsoinfluence IOP.Inaddition,therearemanyantiglaucomadrugs thatlowerIOP.

Methodology:-
This studywasconductedintheDepartmentofOphthalmology, Santhirammedicalcollege andgeneralHospital,Nandyal.

StudyDuration:
February 25th, 2022 to July 25th, 2022.

StudySubjects:
Patients with primary angle closure disease who are thoroughly evaluated before the diagnosis is confirmed.

StudyDesign:
This is a prospective interventional non-randomized hospital-based study. Sixty eyes are studied of patients who satisfied the inclusion and exclusion criteria.

SampleSize:
60 eyes of 30 patients

Methodofcollectionofdata
Thisstudyincluded60 eyes of 30 patients with primary angle closure disease (PACD) requiringLaserPeripheral iridotomy were included in the study. They were subjected to a detailedOphthalmic evaluation and complete examination including visual

AcuitymeasurementbyApplanationtonometer, peripheralanteriorchamberplusangleassessmentbyVan-Herick,andgonioscopyusinga Slitlamp, measurementof IntraocularpressurebeforeandafterLaserperipheraliridotomyandfollowedupfor a period of 6 months.

Inclusioncriteria:
1. Subjects who have given written informed consent for the study and are willing to take part in the study.
2. Patients attending SANTHIRAM MEDICAL COLLEGE & GENERAL HOSPITAL diagnosed with primary angle closure disease taken for ND-YAG laser iridotomy.
3. Age group of 30–70-year

Exclusioncriteria:
1. Already diagnosed Open-angle glaucoma.
2. Patients with secondary angle closure glaucoma like Phacomorphic, Inflammatory, Neovascular glaucoma, etc.,
3. Patients in whom angle structures are not visible secondary to opacities in the cornea.
4. Normal tension glaucoma.
5. Those patients who are not willing to take part in the study and those who did not give written informed consent.

Procedure:-

It was a prospective hospital-based study 60 eyes of 30 patients with primary angleclosure disease (PACD)requiring laser peripheral iridotomy were included in thestudy.

They were subjected to anterior segment evaluationincluding visual acuity,slit lampexamination,IOP measurement by applanation tonometer,peripheral anterior chamberdepth assessment by Van Hericksmethod, and angleassessment by Goldmann 2mirrorand indentation gonioscopy done byPosner four mirror,using a slit lamp. Anarrow, vertical beam 1mm in length was offsethorizontally for superior and inferiorquadrantsandwasoffsetverticallyfornasalandtemporalquadrants.

Fundusexamination was done with the central lens of Goldmann two mirror lenses and a directophthalmoscope.Post iridotomy, the eyes were dilated with 1% tropicamide, and a slitlamp biomicroscopic examination was done with a 78/90D lens. The disc size andcup: disc ratio was measured with the aid of a graticule (measuring eyepiece, Haag-Streit).

Afterconfirmingthe diagnosis ofprimaryangleclosuredisease,Laserperipheral iridotomy was done using an Nd-YAG laser. Pre-operative brimonidine[57] eyedrops and post-operative topical steroids and anti-glaucoma medications were used asindicated in each patient. Following laser iridotomy intraocular pressure was recordedafter 60 min,subsequent recording at 1st week,2nd week,3rdweek, and 4th week wasdoneafter peripheral iridotomy

Ineachpatient,adetailedhistorywastaken.
Adetailedocularexaminationwasdone.

Examinationofthevision,intraocularpressure,anteriorsegment,gonioscopy, fundus examination was donefor botheyes.

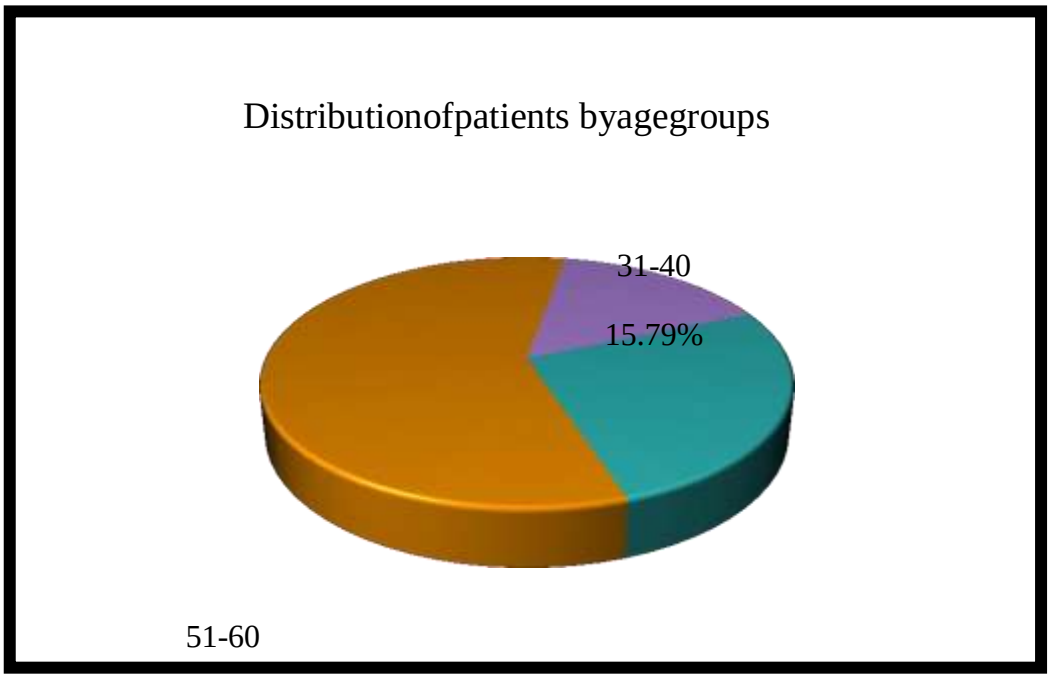
Thestudyinvolved thefollowinginvestigations and interventions on patients.
1. Visual acuitytesting
2. Applanationtonometry
3. Slitlampexamination
4. Gonioscopy is done with Goldmann 2 mirror and indentation gonioscopywith Posner4 mirrorbeforelaser iridotomy
5. DirectOphthalmoscopy/Slitlampbiomicroscopy
6. Nd:YAGLaseriridotomy

Alltheresultsofthevariousexaminationsandinvestigationsweretabulatedandevaluated statistically.

Results:-

Table1.1:- Agedistribution(accordingto thenumberof patients,n=30).

Age(years)	Noofpatients	Percentageofpatients
31-40	3	10.0%
41-50	5	16.7%
51-60	11	36.7%
61-70	11	36.7%
Total	30	100%



Graph1.1:-Age Distribution

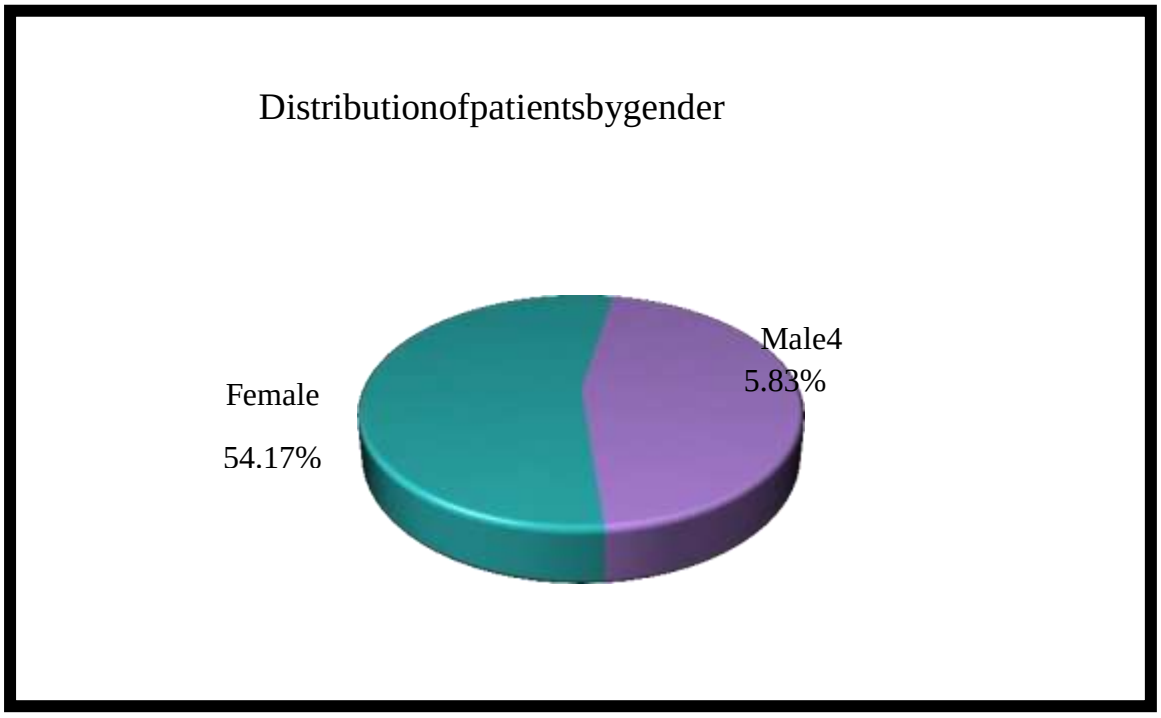
(Accordingtothe Number Ofpatients,N=30).

This table and graph show the age-wise distribution of the 30 patients included in ourstudy. The majority of our patients (36.7%) belonged to the age group between 51 to 60and61 to 70yearsrespectively.

Table1.2:- Genderdistribution(accordingtothenumberof patients,n=30).

Sex	Noofpatients	%ofpatients
Male	11	36.7%
Female	19	63.3%
Total	30	100.00

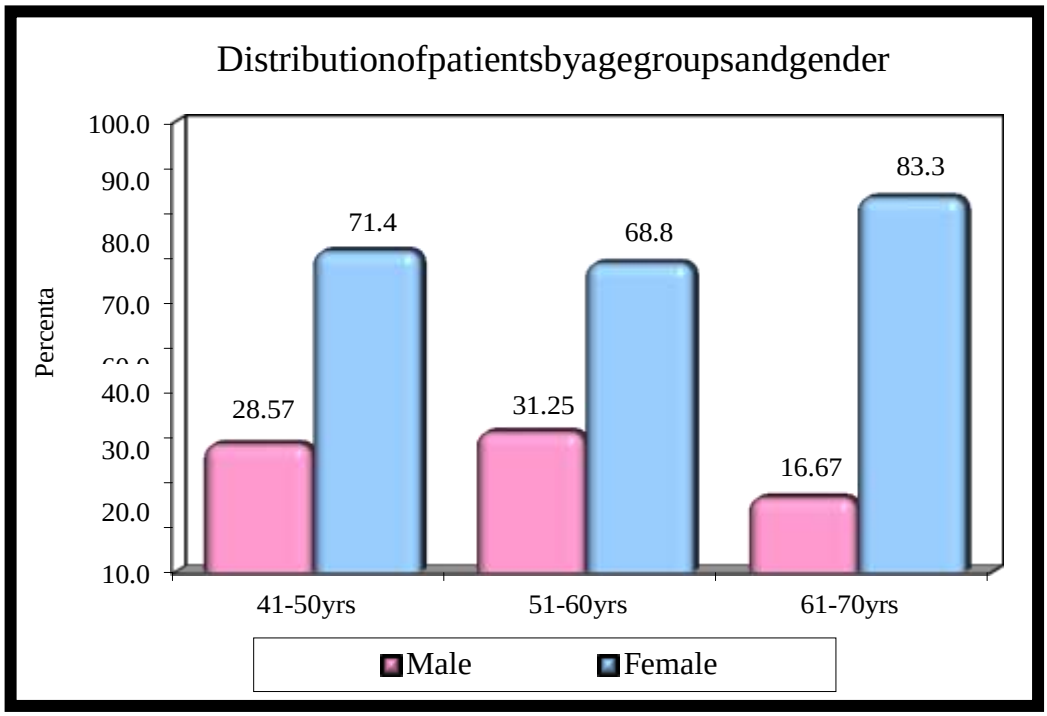
Graph 1.2:- Genderdistribution(Accordingtonumberofpatients,N=29).



Theabove tableandgraphshow the gender distributionofthe patientsincludedinourstudy. The majorityof thepatients werefemale(63.3%).

Table1.3:- AgeDistributionof patientsaccordingtoGender.

Agegroups	Male	%	Female	%	Total
41-50	2	28.57	5	71.43	7
51-60	5	31.25	11	68.75	16
61-70	1	16.67	5	83.33	6
Total	8	27.59	21	72.41	29

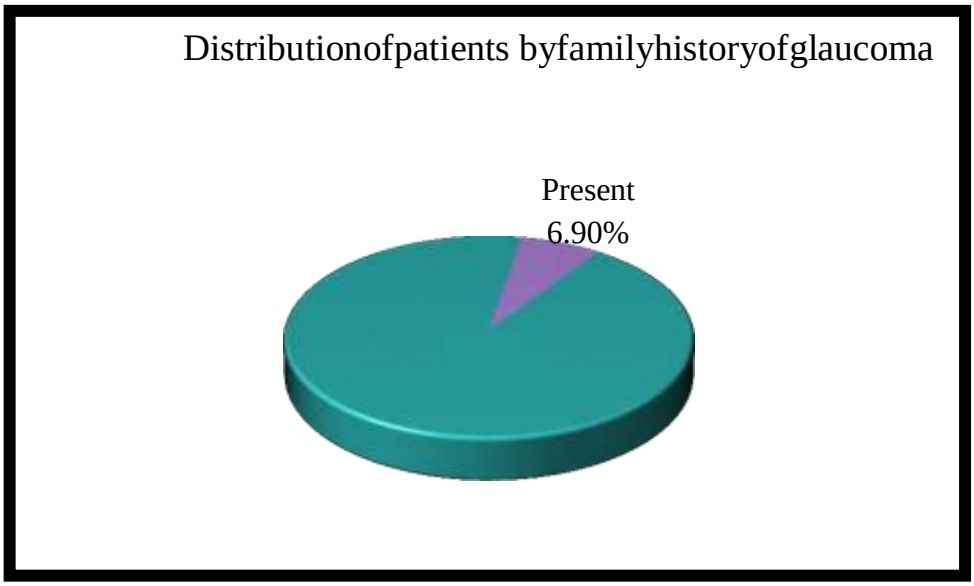


Graph1.3:- Agedistributionaccordingtogender

The above table and graph show the age distribution in males and females. Femalepredominance isseen in allagegroups.

Table 1.4:- FamilyhistoryofGlaucoma.

StatusofGlaucoma	Noofpatients	%ofpatients
Present	4	13.33
Absent	26	86.66
Total	30	100.00

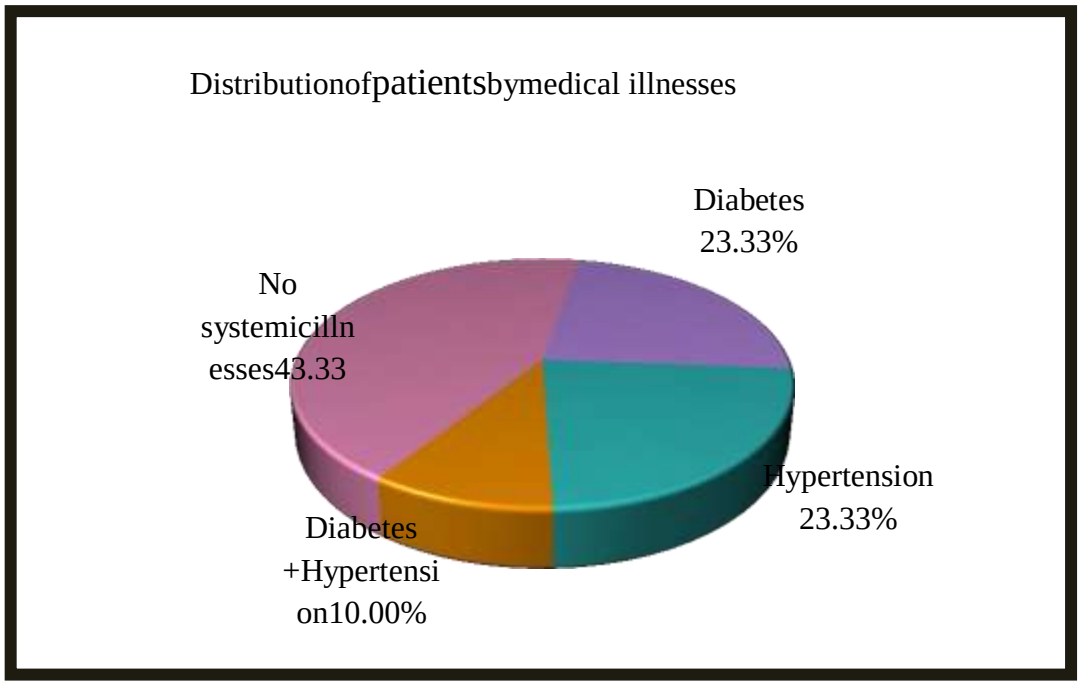


Graph1.4:-Familyhistoryofglaucoma.

Theabovetableandgraphshowthenumberofpatientshavingapositivefamilyhistory.In ourstudy, 13.33(4patients) had afamilyhistoryofglaucoma.

Table 1.5:- Medicalillnessesassociated.

Medicalillnesses associated	Noofpatients	%ofpatients
Diabetes	7	23.33
Hypertension	7	23.33
Diabetes+Hypertension	3	10.00
Nosystemicillnesses	13	43.33
Total	30	100.00

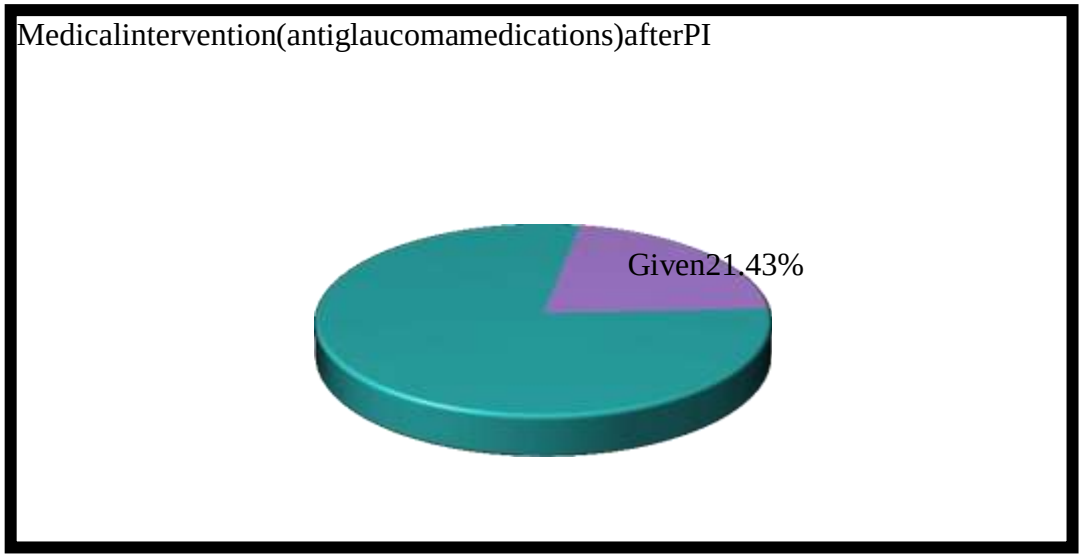


Graph1.5:- Medicalillnessesassociated

The above table and graph portray the systemic illness in our study subjects.Out of 30patients,7 had diabetes,7had hypertension and 3had both.

Table1.6:- Medicalintervention (anti-glaucoma medications)afterPI.

Antiglaucomamedications	Noofpatients	%ofpatients
Given	6	21.43
NotGiven	22	78.57
Total	30	100.00

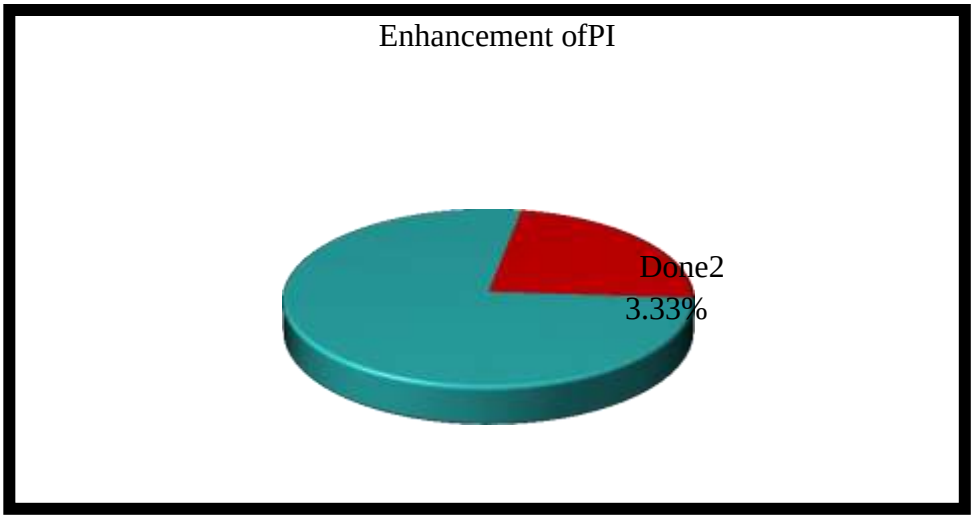


Graph1.6:- Anti-Glaucomamedicationafterpi.

The above table and graph show the number of patients started on anti-glaucomamedications after PI. In our study,21.43%(6 patients) were started on anti-glaucomamedicationsto decreaseIOP after PI.

Table 1.7:- EnhancementofPIinsubsequentvisits.

Enhancementof PI	Noofpatients	%ofpatients
Done	7	23.23
NotDone	23	76.67
Total	30	100.00



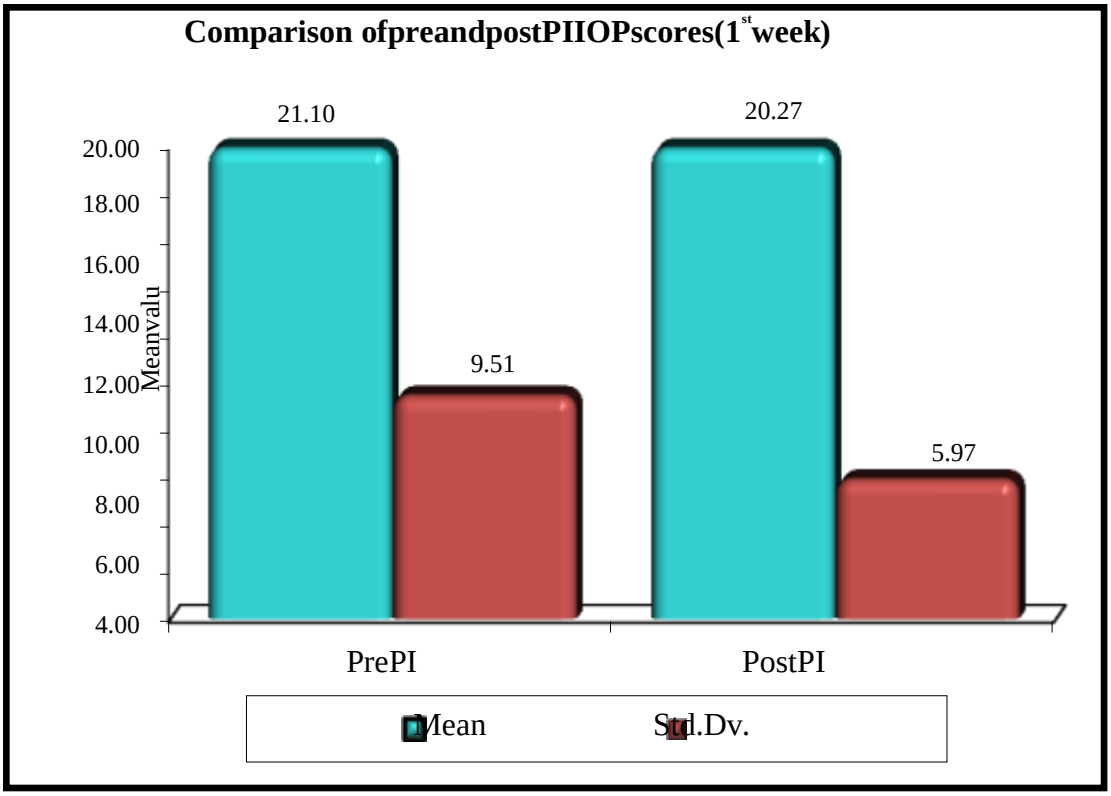
Graph1.7:-Anti-Glaucomamedicationafterpi.

The above table and graph show the number of patients taken for enhancement of PI.In our study,23.23(7 patients)underwent enhancement of PI in subsequent visits forcontrolofIOP.

Table1.8:- Comparison of baseline(pre-PI) and post PI(1st week)intra ocularpressurescores by paired ttest.

IOP	Mean	SD	Tvalue	Pvalue
Baseline	21.10	9.513	1.108	0.272
Immediate	20.27	5.966		

*p<0.05



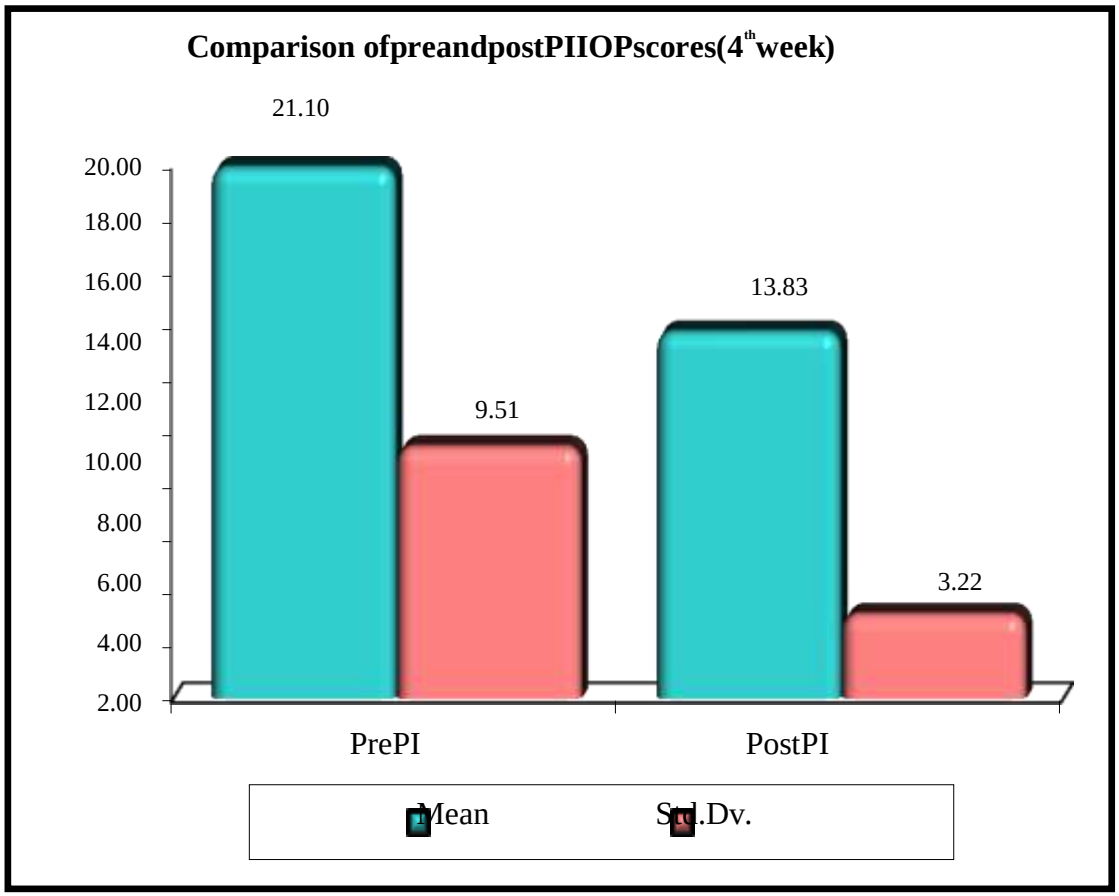
Graph1.8:-Comparisonofioppreversus Post-Piin50 Eyes.

The above table and graph depict the change in intraocular pressure (IOP) afterperipheraliridotomy in 60 PACS eyes. As seen from the table/graph some eyesshowedaconsiderable drop inIOP whileothers didnot.

Table 1.9:- Comparison of baseline(pre) and post PI(after 4 weeks) intraocularpressurescores by paired t-test.

IOP	Mean	SD	Tvalue	Pvalue
Baseline	21.10	9.513	7.415	0.0001
4th week	13.83	3.216		

*p<0.05



Graph1.9:- Comparisonofioppreversus Post-Piin50eyes

Theabovetableandgraphdepictthechangein intraocular pressure(IOP)afterperipheraliridotomy in 60 PACS eyes. As seen from the table/graph some eyesshowed a considerable drop in IOP.Overall, there was a statistically significantdecreaseinIOPpostiridotomyafter4weeks(21.10±9.51mmHgVs13.83±3.22mmHg),(P<0.05)

Statisticalanalysis:
ResultsareexpressedasMean±SD,Range,numbers,andpercentages.Studentt-testwas usedforcomparingthe meansof the two groups.

Ap-valueof0.05or lesswas consideredforstatisticalsignificance.

Discussion:-

Glaucoma is the leading cause of irreversible blindness worldwide and is second only tocataracts as the most common cause of blindness overall(14%)[1].Primary angle closureglaucoma(PACG)contributesconsiderablytotheglobalburdenofvisualimpairment.[22]Several population-based studies in our country have highlighted itsimplicationin theIndianscenario.[3,27,28,31,32]

Laser peripheral iridotomy is the standard first-line intervention for acute and chronicangle Closure[5]. It prevents the recurrence of acute episodes and eliminates the risk ofacute attacks in fellow eyes. Iridotomy acts by eliminating relative pupil block whichis one mechanism underlying the development of angle closure. By allowing aqueousto flow directly through the iridotomy site, LPI equilibrates the pressure between theanteriorandposteriorchambers.Eliminatingthispressuregradientflattenstheiris,allowingtheperipheraliristofallbackward,resultinginawiderangleconfiguration.However,theprophylactic efficacy ofLPIfordiseasecontrolisdependent primarilyon theunderlyingmechanism.

Patientprofile:
This study included 60 eyes of 30 patients.Most patients (36.7%) belonged to the agegroup of 51-60 years and 61-70 years(Mean)respectively.19(63.3%) patients werefemaleand11(36.7%)weremalepatients.A familyhistoryofglaucomawaspresentin4(13.33%)patients.Outof30patients,7(23.33%)haddiabetes,7(23.33%)hadhypertensionand 3(10%)had both.

Clinicalassessment:
Informedconsentforthe studywastakenfromallpatientsincluded.

The ocularexaminationincludedSnellen'svisualacuitywasmeasuredinallcases.Intraocularpressure(IOP)wasmeasuredwithan applanationtonometer(Perkins).A slit lamp examination was carried out on every subject, noting down theVan-Hericks grading. Ischaemic sequelae of angle closure and anysigns of secondaryglaucoma were specifically looked for to exclude them from the study.Gonioscopy wasperformed with Goldmann two mirror. A narrow, vertical beam 1mm in length wasoffset horizontally for superior and inferior quadrants and was offset vertically fornasal and temporal quadrants. The width of the irido-trabecularrecess was recordedin the four quadrants.Care was taken to avoid the slit beam light falling on the pupil.Dynamic (indentation) gonioscopy using Sussman four-mirror lens was used to assessthe presence or absence of peripheral anterior synechiae (PAS) in each quadrant.Patientsin whom270° of the posterior trabecular meshworkcannot be seen, In theabsence of elevated IOP, PAS, or disc changes were included. Each quadrant of theanteriorchamberanglewasgradednumericallyusingShaffer'sgonioscopicgrading[40].most of the cases had a grading of angle G2(moderately narrow and risk ofclosure)to G0(angles are closed withiridocorneal touch).

Fundus examination (undilated) before iridotomy was done with the central lens ofGoldmann two mirror lenses and a direct ophthalmoscope.Post iridotomy, the eyes weredilated with 1% tropicamide, and a slit lamp biomicroscopic examination was done witha78/90D lens. The disc size and cup:disc ratio was measured with the aid of a graticule(measuringeyepiece, Haag-Strait).

Participants in whom 270° or more of the posterior (usually pigmented) trabecularmeshwork was not visible during static gonioscopy were eligible for this study.Allpatients with established PAC (with evidence of previous acute episode or establishedperipheralanteriorsynechiae)orPACG(withestablishedglaucomatousopticneuropathy) were excluded. The definition was based on the International Society ofGeographicaland EpidemiologicalOphthalmologyclassificationsystem.

ND-YAGLASERperipheraliridotomytechniqueandsettings
Laserperipheraliridotomy(LPI)wasperformedusingNeodymium-yttrium–aluminum–garnet laser. One drop of pilocarpine 1% was instilled into the interventioneye 15 minutes before treatment.All iridotomies were performed using an Abrahamlens (Ocular Abraham Iridectomy YAG Laser Lens; Ocular Instruments) to focus thelaser beam and to minimize possible adverse events.Laser peripheral iridotomy wasperformedusingneodymium:yttrium–aluminum–garnet(Nd:YAG)laser,Patientswere treated in the peripheral supero-nasal or supero-temporal region (within the rangefrom 10 to 2 o'clock) in an area where the iris appeared thinnest (preferably in acrypt).

The iridotomy was performed using the Nd:YAG laser, starting at an initialsetting of 1.5 mJ. Energy levels of 3 to 8 mJ were used.An opening of 150 to 200microns was aimed for. The minimum size of an iridotomy was 200 μm (0.2 mm) indiameter,judgedusingthe0.2-mmspotonaslitlamp.Theiridotomysitewasexaminedforpatencybyretroilluminationanddirectvisualizationofstructurespo sterior to it.If bleeding occurred during the procedure, digital pressure was appliedtothecontactlenstoachievehemostasis.PostLPIpatientsadropof0.2%brimonidinewas instilled and were given oral carbonic anhydrase inhibitor stat 2tablets.All patients were given 1% dexamethasone drops to apply 4 times daily for 1weekand tapered.

At least 1 week after the LPI treatment, the patients returned for a postoperative examination.

During the follow-up visit, about 1 week after LPI, a complete ophthalmic evaluationwas repeated. Gonioscopyand Intraocular pressure recording was doneunder thesameconditionsasbeforeat2,3,4weeks.ResponsetolaseriridotomywasbymeasuringIOP.

Intraocularpressure

The practice of Nd-YAG laser peripheral iridotomy (LPI), is effective in lowering theintraocular pressure (IOP) and relieves pupillary block,as a prophylactic measure inpreventingangle closure crisis.

Khaw PT [6] et al noted Without any ocular hypotensive medication use, the IOPdecreased by almost 3 mmHg (P<0.001) after LPI. The mean pre-operative IOP was14.4±0.7mmHgVs the meanpost-operativeIOPof 11.3±0.6mmHg.

Nolan WP[10] et alnoted Sixty four subjects who were treated with YAG laseriridotomy,27eyeshadanIOPrecordedas>19mmHgbeforeiridotomy.Ofthese15(55.5%)hadIOP </=19mmHg.(Mcnemartestformatchedpairwas withP<0.01)

In our study of sixty eyes with PACS, we found the mean baseline(pre-PI) IOP was21.10±9.5mmHg. The mean post-PI IOP was 20.27±5.96mm Hg(after 1 hour).Therewas no significant decrease inIOP after 1 hour of post-PI.The IOP reduction at theend of 1 week was not statistically significant(P value 0.272).At the end of 4 weeks, IOPdecreasedbyaround8mmofHg.Themeanbaseline(pre-PI)IOPwas21.10±9.5mmHg.Themeanpost-PI(at4weeks)IOPwas13.83±3.22mmHg(P<0.05).About6(21.43%)patientswereontopical/systemicantiglaucomamedicationsafterPItocontrolIOPand7(23.23%)patientsunderwentenhancementof PI for control of IOP.Hence on an average of 77.62% of patients hadadrop inIOP,attributedto ND YAG laser peripheral iridectomy.

Intraocularpressurechangesafterpi

Intraocular pressure was measured using Goldmann applanation tonometry.Goldmannapplanation tonometry was repeated to establish the baseline IOP for the study beforeLPI.Results of 3 consecutive measurements were recorded at both the baseline andfollow-up visits.The mean of the 3 measurement values was used for assessment.Onehouraftercompletionofthelasertreatment,IOPwasremeasuredbyGoldmannapplanation tonometry.Individuals who had an IOP after LPI of more than 30 mmHgweregivenaseconddropofbrimonidineandatabletofacetazolamide250mg(iftherewasnocontraindication)andwere dischargedwithaprescriptionofacetazolamide 250mg 3 times daily for 2 days,at whichIOP was re-evaluated. Alltreated subjects were given dexamethasone 0.1% eye drops to be administered hourlyfor24 hours then 4 timesdailyfor 1 week after theprocedure.

Inthisseries,only 6(21.3%) of 60eyesexperience a clinically significantIOPelevation (defined as IOP after LPI of ≥30 mmHg and requiring medical treatment).Iridotomiescreatedusingpulsed Nd:YAGlasersuseplasmaformationandconsequent photodisruption, Instead of coagulation of proteins created by continuouswavelaserssuchasargon,diode,andfrequency-doubledYAGmachines.UseofNd:YAG lasers results in relatively more bleeding and pigment dispersion and thedepositionofdebrisfrombloodandpigmentinthejuxtacanaliculartrabecularmeshworkmay impedeaqueousoutflowandcauseIOPelevation.Basedonthephotodisruption mechanism of the Nd:YAG laser, more shots of laser applied in theprocedure may releasemore pigment particles from the iris, whichcould challengethe aqueous outflow facility and could induce IOP elevation. An IOP spike after LPImay be associated with both increased aqueous production mediated by prostaglandinrelease and decreased outflow facility resulting from debris, denatured proteins, orcells.Higher amounts of laser energy may induce a stronger prostaglandin-mediatedinflammatory response, and thus cause more active aqueous production.Bleeding canproduceextradebrisandbloodcells,irisstrands,andthickpigmentedirismaychallenge the outflow facility further and may induce elevated IOP,hence PI enhancementwasdoneinsuchcases.TheeffectofNd:YAGlaserisachievedthroughphotodisruption,ratherthanphotocoagulation,whichresultsinarelativelyhigherincidenceofbleeding.TheincidenceofIOPspikes1hourafterLPIalsowasassociated with a shallowercentral anterior chamber depth.This association may bethe result of a narrower angle configuration or plateau iris.This study measured IOPonly at 1 hour after LPI to determine the immediate change in IOP caused by theprocedure and then again at 1,2,3 and 4 weeks.However, the peak of IOP elevationafter LPI may not necessarily occur 1 hour after the treatment, and it is not certainthat additional IOP increases did not occur later the same day or at any point before 4weeks after LPI.The proportion of females in the current study is higher than that ofmales.

Insummary,thisstudyinvestigatedtheimmediateIOPchangeandriskfactorsforIOP spikes after laser treatment in PACGs treated by prophylactic LPI.The incidenceof clinically significant IOP elevation after LPI was low.More laser energy

used andshallowercentralanteriorchamberdepthwerefoundtoberiskfactorsforIOPelevationof8 mmHgormorebeyond baselineafterLPI.

Conclusion:-

Laser iridotomy produces a significant widening of the anterior chamber angle inpatients with primary angle closure suspects.Long-term results of LPI IN PAC,PACS,andPACG havethe following advantages,

1)LPI helps in maintaining normal IOP.
2)preventionoffurtheracute/sub-acuteattacks.
3)chamber depth maintained and gonioscopically angles remain open
4)peripheralanteriorsynechiaecan beprevented.
5)microscopic damage to angle structures is avoided.
6)irisconfigurationmaintainedbypreventingIOPspikes.

A. Laserperipheraliridotomycancauseanacuteand(usually)transientposttreatmentrisein intraocularpressure(IOP) in somepatients.

B. To bluntIOP spikes invulnerablecasesantiglaucomamedications can beaddedandPIenhancement(retreatment) can bedone.

C. Laserperipheraliridotomyinprimaryangle-closurediseaseresultedina significantIOPrisein 23.3% ofcases at 1 hourand 2 weeks,respectively.

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