

A STUDY ON ASSESSMENT OF ANGLE WIDTH IN PACD USING ANTERIOR SEGMENT OCT

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ABSTRACT

Glaucoma is an ocular disease effecting more than 67 million people worldwide. The prevalence of glaucoma in South India is around 2.6% of which 90% are undetected. Any decrease in outflow due to structural changes in angle, or the angle is occluded by iris resulting in narrowing of angle causes rise in IOP resulting in Primary angle closure disease. The present study is done on 100 patients who presented to the department of Ophthalmology between age group 40-70 years with a complaint of suspected shallow anterior chamber and those with family history of glaucoma and history of hypertension. Detailed ocular examination was done, IOP was recorded and anterior chamber angle was evaluated by anterior segment OCT. The results revealed that AS-OCT detects a greater number of eyes with closed angle and gives high resolution images being non-contact method good patient compliance.

INTRODUCTION

Glaucoma is an ocular disease effecting more than 67 million people worldwide. The prevalence of glaucoma in South India is around 2.6% of which 90% are undetected. In human eye production of aqueous humor occurs in ciliary body and from there it flows to posterior chamber and then to anterior chamber through pupil via conventional trabecular meshwork and non-conventional uveoscleral pathway. Any decrease in outflow due to structural changes in angle, or the angle is occluded by iris resulting in narrowing of angle causes rise in IOP resulting in Primary angle closure disease. PACD accounts for nearly 50% of glaucoma related blindness. Angle assessment is gold standard investigation for diagnosis of glaucoma. For several years gonioscopy is the gold standard investigation of choice for PACG, but due to advances in the field of technology the anterior segment depth can be estimated by high resolution techniques like AS-OCT and ultrasound bio microscopy. OCT provides multiple detailed cross sectional images of the internal structures in biological tissues. OCT is widely used because of noninvasive studies of structures and pathologies of Anterior segment .The present study highlights the clinical applications of ASOCT in glaucoma.

AIM AND OBJECTIVES-To assess the anterior chamber angle in primary angle closure disease with optical coherence tomography.

MATERIALS AND METHODS

A prospective study was done on 100 patients who presented to the department of Ophthalmology, VMMC, Karaikal, Pondicherry for the duration of 18 months. Both male and female patients of age group 40-70 years who presented to OPD with suspected shallow anterior chamber, family history of glaucoma, history of hypertension. Patients with history

of prior laser surgery, prior ocular trauma, with mature /hyper mature cataract, patients with dilated pupil due to any cause were excluded from the study. In all the patients who fulfilled the inclusion criteria, after taking informed written consent, detailed ocular examination was done, IOP was recorded and the anterior chamber angle was evaluated by AS-OCT.

RESULTS

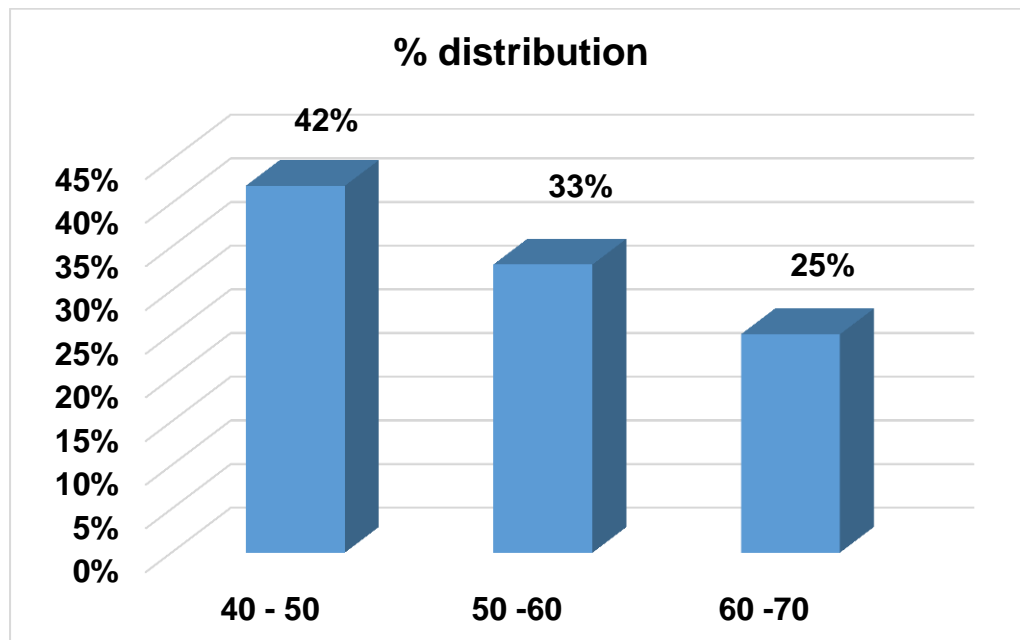


Figure 1: Distribution of age among the study population.

The distribution of age among the study population was given in figure 1. It showed that out of the 100 patients included in the study, 42 patients (42%) belong to the age category of 40-50 years, 33 patients (33%) belong to 50-60 years' age category and 25 patients (25%) belong to the 60-70 years' age category.

Table 2: Distribution of gender among the study population.

Gender distribution	No. of patients	Percentage
Male	41	41.0%
Female	59	59.0%
Total	100	100%

The distribution of gender among the study population was depicted in table 2. It reveals that 59 patients (59%) from the study population (n=100) were females and the remaining 41 patients (41%) were males.

Table 3: Family history of glaucoma among the study population.

Family History	N	Percentage
Y	2	2.0%
N	98	98.0%
Total	100	100%

The family history of glaucoma among the study population was given in table 3. The evaluation revealed that out of the 100 patients included in the study, only 2 patients (2%)

had family history of glaucoma and the remaining 98 patients (98%) did not have any family history of glaucoma

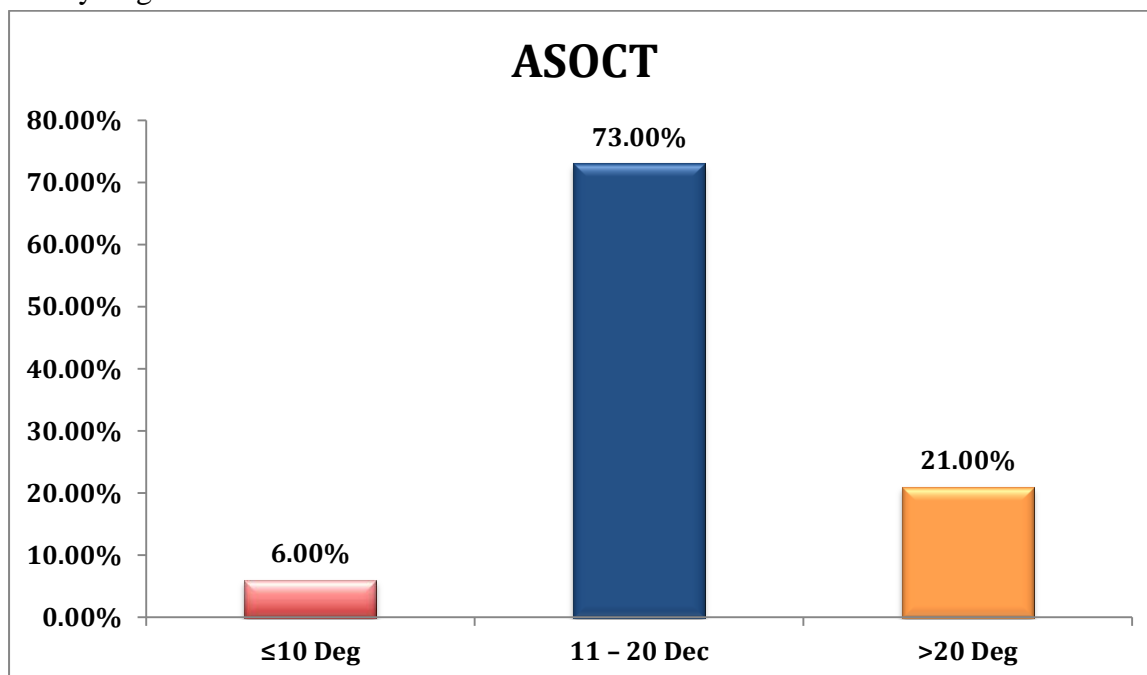


Figure 2: Angle grading by Anterior Segment OCT among study population.

The degree of anterior segment oct among the study population was depicted in figure 2. The anterior segment oct evaluation results showed that out of 100 patients included in the study, 73 patients (73%) had 11-20 degrees followed by 21 patients (21%) with >20 degrees and 6 patients (6%) with ≤10 degrees.

TABLE 4: Association of PACD category and Anterior segment oct results

Category	ASOCT			Total
	≤10 Deg	11 - 20 Dec	>20 Deg	
PACS	0 (0.0%)	72 (72.0%)	21 (21.0%)	93 (93.0%)
PAC	3 (3.0%)	2 (2.0%)	0 (0.0%)	5 (5.0%)
PACG	2 (2.0%)	0 (0.0%)	0 (0.0%)	2 (2.0%)
Total	5 (5.0%)	74 (74.0%)	21 (21.0%)	100 (100%)
Chi Square test value	20.783	P value	0.0001 (Sig)	

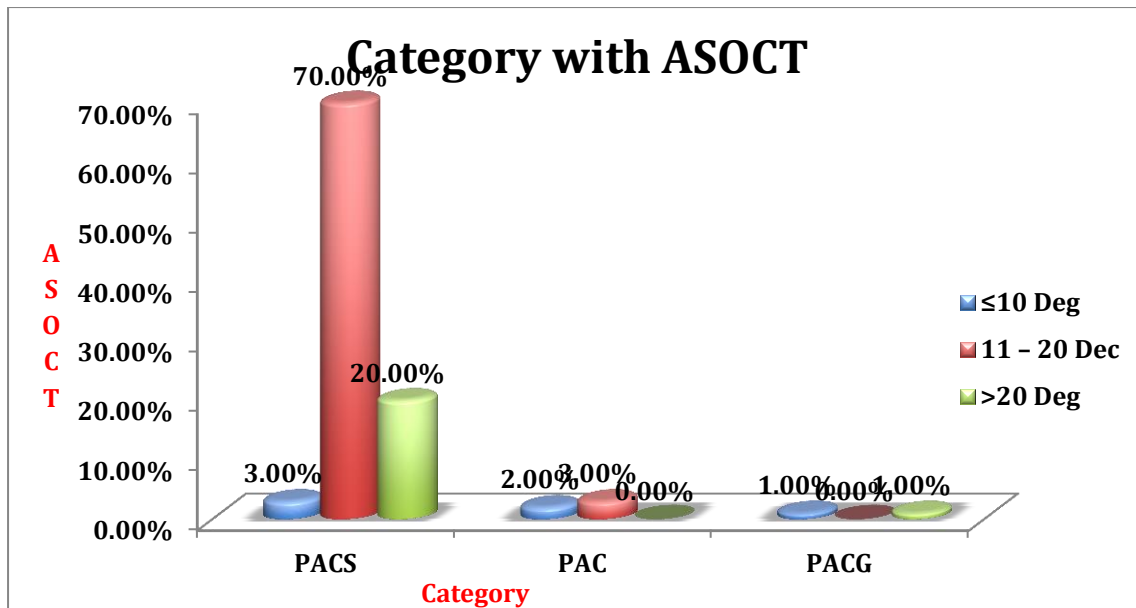


Figure 3: Association between glaucoma category and ASOCT.

The association between PACD category with anterior segment oct was evaluated by chi square test and given in table 4 and figure 3. Out of the 93 patients (93%) with PACS, 0 patients had ≤ 10 degree on ASoct, 72 patients had 11-20 degrees on ASoct and 21 patients had >20 degrees on ASoct. In the 5 patients (5%) with PAC, 3 patients had ≤ 10 degrees on ASoct and 2 patients had 11-20 degrees on ASoct. In the remaining 2 patients (2%) with PACG, both patients had ≤ 10 degrees ASoct. The association was found to be significant as the p-value of 0.0001 and chi square test value of 20.783 suggests

DISCUSSION

CONCLUSION:

Optical coherence tomography(OCT) is non-contact type, high resolution imaging method with good patient compliance. It demonstrates good sensitivity for detecting angle closure. This can be useful for early prediction of and diagnosis of disease. Only limitations of AS OCT is, only small cross -section is seen, which does not depict the full picture. But this limitation can be overcome by advancement in technology further in future.

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