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Detection of Angle Abnormalities in Hyperopes

MOATAZ A.Kh.M. ALI, M.Sc.; AMR S. GALAL, MD.; MOMEN M. HAMDI, MD.;
MO'MENA AA. AWAD-ALLAH, M.D. and NADA A. ABDEL AZIZ, M.D.

The Department of Ophthalmology, Faculty of Medicine, Ain Shams University

Abstract

Background: Chronic angle closure is an asymptomatic disease, so early detection of those patients is mandatory before synechial closure of angle and irreversible vision loss. Hyperopia is one of the risk factors of angle-closure disease. Patients with symptomatic or suspected angle-closure or patients with a positive family history should undergo tonometry, gonioscopy, perimetry along with newer diagnostic modalities like AS-OCT and UBM.

Aim of Study: The aim of this work was to detect abnormalities in anterior chamber angle in hyperopes above age of forty years old and diopteric power >1D.

Patients and Methods: The study was an exploratory cross sectional study that was conducted in Ain Shams University Hospital on 100 eyes of 50 hypermetropic subjects above age of forty years and diopteric power > +1D. Each patient was fully assessed through complete ophthalmic history, slit lamp examination by focusing on (tonometry, VH grading and gonioscopy) and UBM. Data was retrieved and analyzed.

Results: Angle abnormalities were detected in 42.0% of the studied hyperopic subjects in the form of [34.0% primary angle closure suspects (PACS), 8.0% primary angle closure (PAC)]. Plateau iris configuration (PIC) appeared in 34.1% of the studied narrow angle subjects. Additionally, APCP, CBT-max, Iris Convexity and the number of obliterated ciliary sulcus quadrants have a highly significant value in diagnosing the PIC. A negative statistically significant correlation was detected between the hypermetropic amount and the average UBM values. Hypermetropic amount showed a highly significant correlation with the Van Herrick grading and the gonioscopic shaffer grading. A highly significant correlation was detected between gonioscoipc shaffer grading and UBM values of anterior chamber angle. A highly statistically significant correlation was found between the Van Herrick grading and UBM values of anterior chamber angle.

Conclusion: Angle abnormalities were detected in 42.0% of the studied hyperopic subjects in the form of [34.0% primary angle closure suspects (PACS), 8.0% primary angle closure (PAC)]. A negative statistically significant correlation was detected between the hypermetropic amount and the average UBM values AOD500, A0D750, TIA500 and TCPD. Hypermetropic amount showed a highly significant correlation with the Van Herrick grading and the gonioscopic shaffer grading.

Key Words: *Angle abnormalities — Hyperopes.*

Correspondence to: Dr. Moataz A.Kh.M. Ali,
E-Mail: Moatazkhairy_123@ yahoo .com

Introduction

CHRONIC angle closure is asymptomatic disease, so early detection of those patients is mandatory. Headaches may be the only presenting symptom. Subacute angle closure glaucoma (SACG) may lead to chronic angle closure glaucoma and irreversible vision loss if not detected and treated early before synechial closure of angle [1].

It has been demonstrated that without an appropriate gonioscopic evaluation, the vast majority of chronic angle closure varieties may be mistaken for open-angle glaucoma, In this respect, Varma et al found that approximately 10% of patients diagnosed with primary open-angle glaucoma were actually affected by angle closure glaucoma **[2].**

Primary angle closure suspects are Subjects with narrow angles which is defined as eyes in which there was at least 270° of the posterior pigmented trabecular meshwork, IOP <21mmHg, normal optic disc and no Peripheral Anterior Synechia (PAS), while Primary angle closure glaucoma patient are Subjects with narrow angles, chronically elevated Intaocular Pressure (TOP) above 21 mmHg and glaucomatous optic neuropathy characterized by diffuse or localized rim thinning, disc hemorrhage, a notch in the rim, or a vertical cup-to-disc ratio higher than the other eye by >0.2, typical visual field defects, Patern Standard Deviation (PSD) with p<0.05, and abnormal glaucoma hemifield test result. Primary angle closure crisis is a condition in which Subjects have a narrow angles and IOP at presentation of at least 30mmHg, and presence of any two of the following symptoms: Ocular or peri-ocular pain, nausea and/or vomiting, halos, and presence of at least

3 of the following examination findings: Conjunctival injection, microcytic corneal edema, mid-dilated pupil, and shallow anterior chamber **[3].**

In study detecting Five year risk of progression of primary angle closure suspects to primary angle closure, there was 25% risk of increase in IOP or synechial changes in angle **[4].**

Gonioscopy is a subjective technique, has a degree of invasiveness, requiring topical anesthesia, and may be bothersome for the patient. It is a time-consuming examination, requiring experienced operators and a long learning curve Finally, being a contact technique, it should be avoided in the presence of infectious disorders or a damaged corneal epithelium. Despite all these limitations, gonioscopy is the current gold standard technique for angle assessment, providing a detailed 360° view of the Anterior Chamber Angle (ACA), from the Shwalbe Line (SL) to the Ciliary Body (CB) **[5].**

Shaffer's classification model is the most widespread in clinical practice, and differentiates among 5 grades of angle opening (0-4), 0 and 4, indicating irido-corneal contact and an identifiable CB, respectively. The closed angle combines the gonioscopic grades 0 and 1, the borderline angle matches the gonioscopic grade 2, and the open angle combines the gonioscopic grades 3 and 4. According to this model, the transition from the gonioscopic grade 1 to the higher grades may be considered a break point in differentiating between closed and open angles., respectively **[6].**

The traditional van Herrick (VH) grading system provides a 4-point grading scheme, in which limbal Anterior Chamber Depth (ACD) is graded .25% (VHG 1), 25% (VHG 2), >25% and 50% (VHG 3), and >100% of the corneal thickness (VHG 4) **[7].**

Aim of the work:

The aim of this study is to detect the abnormalities in anterior chamber angle in hyperopes above age of forty years and diopteric power >1D.

Patients and Methods

Patients:

Our study was an exploratory cross sectional study. It included 100 eyes of 50 subjects of hyperopes above age of forty years and diopteric power >+1 Diopter (D). They were gathered from Ophthalmology Outpatient Clinic, Ain Shams University Hospital in the period from January, 2023 till July, 2023. The nature of the investigation was explained to the participants in details and an oral consent was taken by all participants. Ethical committee approval was obtained from Research Ethics Committee at the Faculty of Medicine, Ain Shams University, with assurance No. FWA000017585. The study was consistent with the principles of Helsinki declaration.

Inclusion criteria included hypermetropes with diopteric power above +1 D and age above 40 years.

Exclusion criteria were any previous history of any type of glaucoma, dense cataract above NC2 which interfere with fundus examination and imaging quality, dense Corneal opacity affecting image quality, any other associated retinal pathology affecting patient visual field, previous corneal refractive surgeries affecting IOP measuring accuracy, any previous ocular surgery.

Clinical examination:

Slit lamp examination including full anterior segment examination, van Herrick technique, visual acuity examination, un-dilated fundus examination for optic nerve head by Volk 90 diopter lens (to avoid the effect of pupillary dilatation on angle morphology), intraocular pressure (TOP) measurement by applanation tonometer. Gonioscopy by: goldmann three mirror lens (Opticlear three mirror gonio lens), posner four mirror lens (Ocular Posner four mirror gonio lens) for indentation to differentiate appositional Irido-Trabecular Contact (ITC) from synechial ITC. Data were collected according to Shaffer grading system.

Ultrasound Biomicroscopy (UBM):

This examination was performed by Ultrasound Biomicroscopy (VuMAXE) UBM) (Sonomed Escalon@) (USA). All the UBMs were done by the same professional operator. All subjects were examined in a supine position in a semi-dark room. The reviewed images for every case were sulcus-to-sulcus axial scan passing through the center of the pupil and four radial scans at the 12, 6, 3, and 9 clock positions centered over the limbus.

UBM Obtained Parameters:

Angle Opening Distance at 500 and 750pm (AOD500, A0D750), trabecular Iris Angle 500 pm (TIA500), maximum Ciliary Body Thickness (CBTmax), anterior Placement of Ciliary Processes (APCP), trabecular Ciliary Process Distance (TCPD), iris-Lens Contact Distance (ILCD), iris thickness (IT), anterior Chamber Depth (ACD), lens Thickness, lens Position (LP), iris Convexity.

Therefore, subjects were classified tosubjects with no angle anomalies (open angle), patients classified according to European glaucoma society (EGS) classification of angle closure into: Primary Angle Closure Suspect (PACS) in which there is iridotrabecular contact >180 degree, but no evidence of optic nerve damage, primary Angle Closure (PAC) in which there is iridotrabecular contact >180 degree with high IOP or peripheral anterior synechia but no optic nerve damage, primary Angle Closure Glaucoma (PACG) in which there is PAC with glaucomatous optic neuropathy.

The narrow angles were also classified into plateau iris configuration (PIC), non-plateau iris narrow angles.

Statistical analysis:

Data were collected, revised, coded and entered to the Statistical Package for Social Science (IBM SPSS) version 23. The quantitative data were presented as mean, standard deviations and ranges when parametric. Also qualitative variables were presented as number and percentages. The p-value was considered significant as the following: $p>0.05$: Non significant, $p<0.05$: Significant, $p<0.01$: Highly significant.

Results

Our study included 100 eye of 50 subjects [88 eyes for females (88.0%), 12 eyes for males (12.0%)]. As shown in (Table 1) which demonstrates demographic data and characteristics of the studied patients.

Table (1): Demographic data and characteristics of the studied patients.

		Mean ± SD
Sex	Females	44 (88.00%)
	Males	6 (12.00%)
Side	Right	50 (50.00%)
	Left	50 (50.00%)

There is a high statistically significant correlation between the three categories (Open, PACS, PAC) and the spherical error with a p-value of (0.000) as demonstrated in (Table 2).

Also a highly significant correlation was detected between the three categories and the spherical error and spherical equivelant.

All the (15) Plateau Iris Configuration cases (100%) have two or more quadrants with (Plateau configuration criteria). Therefore, the number of plateau configuration quadrants has a highly significant value in diagnosing the plateau iris configuration cases with a p-value of (0.000) as shown in Table (3).

The comparison between the plateau and non plateau of narrow angle regarding average No. of Plateau configuration quadrants is shown in (Table 3).

Double hump sign is positive in 80% of Plateau cases and only 20% of Plateau cases does not have a double hump sign. Therefore the double hump sign has a highly significant predictive value of diagnosing Plateau iris configuration with a p-value of (0.000) as shown in (Table 4).

Correlation between hypermetropic amount and Van Herrick grading and Shaffer grading of the studied patients is shown in (Table 5).

Table (2): Classification by European Glaucoma Society (EGS).

	Open	lry angle closure suspect	lry angle closure	Test value	P^{-} value	Sig.
Age:						
Mean ± SD	5334±7.25	53.56±9.59	52±8.03	0.072	0.930	NS
Range	40-67	42-70	43-60			
Sex:						
Females	25 (86.2%)	14 (87.5%)	5 (100.0%)	0.774	0.679	NS
Males	4 (13.8%)	2 (12.5%)	0 (0.0%)			
Side:						
Right	29 (50.0%)	16 (47.1%)	5 (62.5%)	0.618	0.734	NS
Left	29 (50.0%)	18 (52.9%)	3 (37.5%)			
SE(+):						
Mean ± SD	1.69±034	3.29±0.82	3.91±13	89320	0.000	HS
Range	0.75-2.5	2-5	2-5.75			
Spherical error(+):						
Mean ± SD	1.81±0.40	4.29±1.19	5.41±0.83	146.965	0.000	HS
Range	1.25-3.25	2.5-7	4-6.5			

Table (3): Comparison between the plateau and non plateau of narrow angle regarding average No. of Plateau configuration quadrants.

Plateau configuration Qs	Non-plateau		Plateau		Test value	value	Sig.
	No.	%	No.	%			
None	19	65.5	0	0.0	37 324	<0.001	HS
1Q	8	27.6	0	0.0			
2Qs	2	6.9	6	40.0			
3Qs	0	0.0	5	333			
4Qs	0	0.0	4	26.7			

p>0.05: Non significant (NS). p<0.05: Significant (S). p<0.01: Highly significant (HS).
Chi-square test. Q (Quadrant).

Table (4): Percentage of double hump sign in plateau iris configuration cases.

	Non-plateau	Plateau	Test value	value	Sig.
Double hump sign:					
Negative	29 (100.0%)	3 (20.0%)	31.900	0.000	HS
Positive	0 (0.0%)	12 (80.0%)			

Table (5): Correlation between hypermetropic amount and Van Herrick grading and Shaffer grading of the studied patients.

		Mild (Up to +2.00)		Moderate (+2.25 to +5.00)		Severe (> +5)		Test value	*P*-value	Sig.
		No.	%	No.		No.	%			
Van Herrick Grading	s2	0	0.0	25	67.6	12	100.0	65.216	0.000	HS
	z3	51	100.0	12	32.4	0	0.0			
Shaffer grading	GO	0	0.0	0	0.0	3	25.0	66.375	0.000	HS
	G1	4	7.8	26	703	7	58.3			
T	G2	33	64.7	10	27.0	2	16.7			
	G3	10	19.6	1	2.7	0	0.0			
	G4	4	7.8	0	0.0	0	0.0			
S	GO	0	0.0	0	0.0	1	83	77.206	0.000	HS
	G1	0	0.0	30	81.1	9	75.0			
	G2	31	60.8	6	162	2	16.7			
	G3	16	31.4	1	2.7	0	0.0			
	G4	4	7.8	0	0.0	0	0.0			
I	GO	1	2.0	2	5.4	3	25.0	51.865	0.000	HS
	G1	1	2.0	19	51.4	8	66.7			
	G2	29	56.9	10	27.0	1	83			
	G3	16	31.4	6	162	0	0.0			
	G4	4	7.8	0	0.0	0	0.0			
N	GO	0	0.0	0	0.0	1	83	74.342	0.000	HS
	G1	1	2.0	29	78.4	10	83.3			
	G2	34	66.7	8	21.6	1	83			
	G3	12	23.5	0	0.0	0	0.0			
	G4	4	7.8	0	0.0	0	0.0			

Discussion

In our study we aimed to detect anterior chamber angle abnormalities inhyperopes above age of forty years old and diopteric power >1D by using Ultrasound biomicroscopy **(UBM).**

There are many international studies about the different imaging modalities of the anterior chamber angle, but the reports in Egypt are very scarce.

Our study included 100 eyes of 50 hypermetropic subjects [88 eyes for females (88.0%) and 12

eyes for males (12.0%)]. Age ranged from 40 to 70 years, with a mean of 53.28±7.98. The classification of the angles was according to gonioscopy and European Glaucoma Society classification (EGS). 58 eyes (58%) had open angles, primary angle closure suspect (PACS) was found in 34 eyes (34%) while primary angle closure (PAC) was found in 8 eyes (8%). No cases of primary angle closure glaucoma were detected in our study. Vijaya et al., **[8]** in their study which enrolled 3924 subjects from the rural southern Indian population, showed that the PAC prevelence was 0.71% while PACS prevelence was 6.27%. While Sawaguchi et al. **[9];** in their study which enrolled 3762 subjects from rural Population of Japan, showed that the prevalence of PACS, PAC, and PACG were 8.8%, 6.0% and 2.2%, respectively. The obvious difference in the numbers is probably due to different demographic area, different definitions used by the studies for PAC, PACS and PACG. We adopted the definitions suggested by The European Glaucoma Society Classification of Angle Closure. Another factor is our low sample size.

In comparing open angle, PACS and PAC In our study, the spherical error of refraction was (+1.81±0.40), (+4.29±1.19) and (+5.41±0.83), respectively with a highly statistically significant p-value of (0.000). While Mansoori et al. [10]; in their study which enrolled a total of 185 eyes of PACG patients and 126 eyes of normal subjects, showed that the hyperopic refraction in comparing the control group with the PACG group was (-0.02±1.62 D) and (+2.05±2.01), respectively with a p value of 0.01.

In our study the lens was more anteriory located [Lens Position (LP)] in PACS and PAC groups as compared to the open angle group with a p-value = 0.000. Mansoori et al. [10]; also found in their study that the lens was more anteriory located [Relative Lens Position (RLP)] in PACG eyes as compared to the control group.

In our study, the TIA500 was significantly narrower and the AOD500, A0D750 and TCPD were significantly shorter in PACS and PAC groups when compared with open angle group with a p-value (0.000). Mansoori et al. [10]; and Sihota et al. [H]; showed the same results in comparing the PACG group with normal subjects with p-value <0.0001.

In this study, 15 eyes (34.10% of the studied narrow angles) were diagnosed with Plateau iris configuration (PIC). Mochizuki et al. **[12];** found PIC in 34.6% of patients with PACG. Mansoori et al. [10]; showed PIC in 83/262 PACG eyes with a percentage of 31.68%. Kumar et al. **[13];** noted that PIC was present in 28.7% of the cases with PACG.

The quadrant-wise analysis in the present study showed that obliteration of the ciliary sulcus was more prevalent in the inferior quadrant followed by the nasal one then the superior and temporal quadrants. Kumar et al. **[13];** showed that the superior quadrant was the most involved, followed by inferior, nasal, and temporal quadrants. Mizoguchi et al. [14]; found that the prevalence of PIC is more in the nasal quadrant followed by superior, then temporal, and then inferior quadrant; this may be explained by different ethnicity (Asian population).

It is worth mentioning that the number of obliterated ciliary sulcus quadrants has statistically significant differences in the mean value between the PI and non-PI groups (p<0.001), and the presence of two or more quadrants with obliterated ciliary sulcus is diagnostic for PIC as confrmed by Kumar et al. **[13].**

Six of fifteen eyes (40%) were found to have plateau iris in 2 quadrants, 5 of 15 (33.3%) in 3 quadrants, and 4 of 15 (26.7%) in all 4 quadrants. Kumar et al. **[15];** in their study, found that 24 of 36 eyes (66.7%) were found to have plateau iris in 2 quadrants, 8 of 36 (22.2%) in 3 quadrants, and 4 of 36 (11.1%) in all 4 quadrants.

The results of our study comparing different UBM parameters between the PI and non-PI groups showed a non-significant difference regarding the mean average of AOD500 and A0D750 between PI and Non-PI groups with a p-value of (0.242, 0.239, respectively). Shabana et al. **[16];** found that the means of AOD500 and A0D750 in the PIC showed a statistically significant differences between PI and other mechanisms of PACG (p=0.04, p<0.001, respectively). Moghimi et al. **[17];** showed non-significant difference regarding AOD500 and A0D750 between PI and pupillary block mechanisms *(p=* 0.53 , p=0 .98 respectively).

Regarding TIA500, our study found that the average TIA500 of the PI group was significantly less than that of the non-PI group (p=0.045). Hamad et al. **[18];** found the same findings with a p-value of 0.026.

The current results showed that the mean of average APCP is significantly higher in PI than in non-PI (p=0.000). Garudadri et al. **[19];** detected more anteriorly placed ciliary processes with narrow ciliary sulcus in 22 of 33 eyes with PIC (66.66%).

Additionally, the mean average CBTmax is significantly higher in PI than in Non-PI group (p43.00). While Hamad et al. **[18];** did not find a significant difference between the PI and non-PI groups regarding CBTmax. Also the Iris Convexity in our study showed a highly significant value in comparison between PIC and Non Plateau narrow angles with a p-value of (0.000). To our knowledge, no further published data comparing those two UBM parameters between PI and other mechanisms of narrow angles was detected.

According to the previous results, there is an obvious evidence that UBM image data aided in the PI diagnosis, especially the number of quadrants with obliterated ciliary sulcus, APCP, CBT max and Iris Convexity.

The studies evaluating the relation between the hypermetropic amount and different UBM values in addition to the correlations with Van Herrick and Shaffer grading are very scarce.

Therefore, our study was focusing on this point and detected a highly significant negative correlation between the hypermetropic amount and the average UBM measurements (AOD500, A0D750, TIA500 and TCPD) with a p-value of (0.000) for all of them.

Zhou et al. **[20];** in their study enrolled on (3970) eyes (3403 open angle and 567 Primary Angle Closure Disease), found that the risk of Primary Angle Closure Disease (PACD) increased with greater hyperopia. Hyperopia (- + 0.5 D) conferred a significantly higher risk of PACD compared with myopia (4).5 D) with a (p-value <0.001).

Hypermetropic amount showed a highly significant correlation with the Van Herrick grading with a p-value of (0.00). All our 12 subjects of severe hypermetropia (100%) had a VH grading .2, while all our 51 subjects of mild hypermetropia (100%) had a VH grading -3.

Additionally, hypermetropic amount showed a highly significant correlation with the gonioscopic Shaffer grading in the 4 quadrants with a p-value of (0.00). The higher the hypermetropic amount, the lower the shaffer grading.

Our study revealed a highly significant correlation between gonioscoipc shaffer grading and UBM measurements (AOD500, A0D750, TIA500 and TCPD) with a (p-value < 0.01) for all of them. Barkana et al. **[21];** in their study which enrolled 18 patients, demonstrated that iridotrabecular apposition can be diagnosed with a great degree of agreement between gonioscopy and UBM performed in a dark room.

By focusing on TIA500 numbers in our study, we detected that the mean average TIA500 was 0.59±0.06 in Shaffer grade 0 quadrants, 11.36±12.64 in Shaffer grade 1 quadrants (occludable angle), 26.38±9.71 in Shaffer grade 2 quadrants (border line) and 29.28±10.11 and 41.73±4.91 in (Shaffer grade 3 and grade 4 quadrants, respectively) (widely open angles). The same categorization was done by Phu et al. **[22].**

Comparing our results to the original classification of Shaffer in which grade 0 had anterior chamber angle (ACA) of (0 degree), grade 1 had ACA (. 10 degree), grade 2 had ACA (11-19 degrees), grade 3 had ACA (20-34 degrees) and grade 4 had ACA (35-45 degrees), there was underestimation of angle width gonioscopically when compared with values obtained by UBM especially when we graded angle as grade 2.

Patel et al. **[23];** had results similar to ours in their study which enrolled 100 subjects. They found that 66.7% of the widely open angles by UBM could not be detected by gonioscopy and were falsely grouped as occludable angles, which was underestimation of angle width within the non-occludable group when compared with values obtained by UBM. Narayanaswamy et al. **[24];** in their study which enrolled five hundred subjects, found the reverse when they showed that subjective assessment by gonioscopy resulted in an overestimation of angle width within the occludable group when compared with values obtained by UBM.

In our study, 75.6% of the VH .2 eyes had TIA 500 smaller than 20 degree and 89.8% of the VH eyes had TIA 500 larger than 20 degree. Therefore, The UBM parameter (TIA500) was significantly different between VH .2 and VH eyes (p-value 0.000).

Uejyo et al. [25]; in their study which was done on 301 eyes, showed that the average TIA 500 in the whole 101 VH .2 studied eyes was 10.05±5.17 degree (<20 degree) while the average TIA500 in the whole 200 VH studied eyes is 20.5±8.33 degree (>20 degree) with a p-value (<0.001).

Additionally, Yu et al. **[26];** defined a TIA500 <15 degree as a narrow angle while TIA500 >15 degree as an open angle, they used 15 degree as a cutoff boundary between narrow and open angles.

Regarding the AOD500, our study confirmed that 86.7% of the VH .2 eyes had AOD500 smaller than 130 Micron and 84.3% of the VH eyes had AOD500 larger than 130 Micron. Therefore, The UBM parameter AOD500 was significantly different between VH < 2 and VH eyes (p-value 0.000).

Uejyo et al. [25]; showed that the average AOD500 in the whole 101 VH .2 studied eyes was 110 Micron (<130 Micron) while the average AOD500 in the whole 200 VH studied eyes was 250 Micron (>130 Micron) with a p-value (<0.001).

Additionally, Mansoori et al. [10]; defined the narrow angle as AOD500 (<130 Micron) and defined the widely open angle as AOD500 (>130 Micron).

The previous results mean that VH grade 0, grade 1 and grade 2 are a good indicator for an occludable angle, while VH grade 3 and grade 4 are a good indicator for a widely open angle.

Regarding the above, our study achieved its primary goal which is detecting the angle abnormalities in hyperopes above 40 years old and diopteric power > +1D by UBM. The detection of the various correlations between the different studied parameters was a secondary goal.

Conclusion:

Our study reached the following conclusions, angle abnormalities were detected in 42.0% of the studied hyperopic subjects in the form of [34.0% primary angle closure suspects (PACS), 8.0% primary angle closure (PAC)], plateau iris configuration (PIC) appeared in 34.1% of the studied narrow angle subjects. Additionally, APCP, CBTmax, Iris Convexity and the number of obliterated ciliary sulcus quadrants have a highly significant value in diagnosing the PIC,UBM showed a good reliability in imaging the anterior chamber angle especially by measuring AOD500, A0D750, TIA500, TCPD, CBTmax and APCP parameters ,a negative statistically significant correlation was detected between the hypermetropic amount and the average UBM values AOD500, A0D750, TIA500 and TCPD, hypermetropic amount showed a highly significant correlation with the Van Herrick grading and the gonioscopic shaffer grading, a highly significant correlation was detected between gonioscoipc shaffer grading and UBM values of anterior chamber angle, a highly statistically significant correlation was found between the Van Herrick grading and UBM values of anterior chamber angle.

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الكشف عن تشوهات زاوية الخزانة الأمامية للعين لدى الاشخاص ذوى طول النظر

المقدمة: إنغلاق زاوية العين المزمن هو مرض بدون أعراض، لذا فإن الاكتشاف المبكر لهؤلاء المرضى إلزامى قبل الانغلاق الالتصاقى للزاوية وفقدان البصر التام.

الهدف من هذا العمل: الكشف عن التشوهات فى زاوية الخزانة الأمامية للعين فى الاشخاص ذوى طول النظر فوق سن الأربعين ولديهم عيوب انكسارية اكثر من +١ ديوبتر.

المرضى وطرق البحث: كانت الدراسة عبارة عن دراسة مقطعية استكشافية أجريت في مستشفيات جامعة عين شمس على ١٠٠ عين من ٥٠ شخصا فوق سن الأربعين ولديهم عيوب انكسارية اكثر من +١ ديوبتر. تم تقييم كل مريض بشكل كامل من خلال التاريخ المرضى الكامل للعين، وفحص المصباح الشقى بالتركيز على قياس ضغط العين وفحص زاوية العين بالعدسة وتقييم عمق الخزانة الامامية بالاضافة الى فحص الموجات فوق الصوتية لزاوية العين و تم تجميع البيانات وتحليلها.

النتائج: تم رصد تشوهات بزاوية العين فى ٤٢,٠٪ من الأشخاص ذوى طول النظر الذين شملتهم الدراسة. ٣٤٪ منهم لديهم اشتباه فى حدوث انغلاق اولى لزاوية العين و ٨٪ منهم لديهم انغلاق اولى فى زاوى العين. فى ٣٤,١٪ من ذوى الزاوية الضيقة للعين الذين تم دراستهم تم رصد القزحية المسطحة وتم تأكيد ان ارقام كلا من الانحناء الامامى للجسم الهدبى وسمك الجسم الهدبى ودرجة تحدب القزحية بالاضافة إلى عدد ارباع زاوية العين التى بها انغلاق للشق الهدبى لها ارتباط ذو دلالة إحصائية عالية لتشخيص مرض القزحية المسطحة. تم الكشف عن وجود ارتباط سلبى ذو دلالة إحصائية عالية بين درجة العيب الانكسارى لطول النظر وارقام القياسات التى تم رصدها بالموجات فوق الصوتية لزاوية العين. أظهرت الدراسة وجود ارتباط ذو دلالة إحصائية عالية بين درجة العيب الانكسارى لطول النظر ودرجة عمق الخزانة الامامية للعين و وتصنيف زاوية العين المرصود بعدسة زاوية العين.

الخلاصة: وصلت هذه الدراسة إلى هدفها الأساسي وهو الكشف عن تشوهات الزاوية فى الاشخاص ذوى طول النظر فوق سن الأربعين ولديهم عيوب انكسارية اكثر من +١ ديوبتر، وحققت هدفها الثانوى وهو الكشف عن الارتباطات المختلفة بين القياسات التى تم رصدها بالدراسة.