Estimation of Peripheral Retinal degenerations in myopia.

Haider Aswad Layikh
Teacher of ophthalmology
College of medicine -Al-Qadisiyah University

الخلاصة

الغرض من الدراسة :- الغرض من هذه الدراسة هو لمعرفه مدى انتشار التغييرات الانحطاطية المحيطية عند مرضى قصر النظر و مقارنتها مع مختلف درجات قصر النظر .

طريقه العمل:- تم اختيار مرضى بمختلف درجات القصر ممن راجعوا مستشفى الديوانيه التعليمي للفترة من الاول من كانون الاول 2014 الى الاول من مارس 2015، تم خلالها دراسة مختلف التغيرات الانحطاطية و تسجيلها .

النتائج :-تم فحص 273 مريض بقصر البصر مع معدل عمر 41.93 ±13.16 المرضى الذكور كانوا 131 مريض (55,3%) و المرضى الاناث 106 (44,7%) نسبه الذكور الى الاناث 1,24:1 المعدل الانكساري لعيون المرضى كان -4.72 ± -3.05 D لوحظ الانحطاط الشبكي في 64 مريض (27%) بينما لوحظ الانحطاط الحلزوني في 11مريض(4,6%) لوحظ من خلال النتائج عدم وجود علاقه بين التغييرات الانحطاطية و العمر و الجنس بينما هناك علاقه طرديه مع زياده درجه قصر البصر.

الاستنتاجات و التوصيات :- هناك زياده في نسبه حدوث التغييرات الانحطاطية في شبكيه العين مع زياده درجه قصر البصر علما ان هذه التغييرات وارده الحدوث في درجات قصر لبصر الواطئه.

ABSTRACT

Purpose: The purpose of this study is to estimate the peripheral retinal degenerations rate in myopic subjects, and compare the results between different degrees of myopia.

Methods: subjects with different degrees of myopia who attended the consultations in Al-Diwaniya teaching hospital during the period from 1st Dec. 2014 to 1st of March 2015 got involved in this study, they were examined and peripheral retinal degeneration assessed and recorded.

Results: The study included 237 patients with a mean age of 41.93 ±13.16 years and an age range of 18-65 years. Male patients accounted for 131 (55.3%) whereas female patients accounted for 106 (44.7%) with a male to female ratio of 1.24: 1. Mean refraction was -4.72 ± -3.05 D and ranged from -18.1 to -1.1 D. lattice degeneration was found in 64 patients (27.0%), while snail track degeneration was found in 11 patients (4.6%), results showed no significant relation between age, gender with the incidence of peripheral retinal degenerations while its clearly increasing in incidence with increasing degree of myopia .

Conclusion: The incidence of peripheral retinal degeneration is more in high myopia subjects , although Low& moderate myopic subject still have considerable rate of peripheral retinal degeneration .

Introduction

Myopia is the aftereffect of complex innate and ecological factors"[1]", it`s a typical eye condition influence around 25% of the peoples in the USA and this proportion increase in Asian and abatement in African, while Pathological myopia is extraordinary influencing just 2% of the populace in the USA"[2] ."

The qualification amongst high and low myopia is vital since patient with high myopia have a great deal of related changes in both the front and back portion of the eye "[3]", it is portrayed by dynamic antero-back lengthening of the scleral envelope connected with a considerable measure of optional visual changes identifying with mechanical extending of the tissue"[4] . "

The qualification amongst high and low myopia is debate, in Kaniski clinical ophthalmology seventh release " High Myopia characterized as astigmatism with spherical equivalent more than - 6 diopters in which axial length is normally more noteworthy than 26.5mm" ,while American Academy included the idea of Pathological or degenerative myopia which is characterized as myopia with round likeness

more than - 8 diopters in which axial length is generally more prominent than 32 mm .

Peripheral retinal degenerations ordinarily come in various structures ; Lattice degeneration which is the most widely recognized structure found in around 8% of populace (it found in 40% of eyes with retinal detachment)[6] generally created in second or third decade of life in type of arborizing system of lines with islands and variable decay of retinal tissue, at some point connected with little holes inside , snail track degenrations are the second common form with firmly stuffed snow flackes like appearance with differentiating lines , likewise normal in myopia and connected with gaps inside , different types of retinal degenartions like pigment clumps , degenerative retinoschisis and white without pressure are less basic [7] .

Periphral retinal degenrations usually happens amid youthful adulthood and can prompt a progressive decline in focal vision[8] vision can diminish all the more unexpectedly in a little rate of patients, remaining sight can at present be extremely valuable, and with the assistance of low vision optical aids, individuals with this condition can proceed with a hefty portion of their ordinary activities.[5]

The reasons for myopia degeneration are not plainly saw, but rather they may incorporate biomechanical variations from the norm or genetic variables, the biomechanical hypothesis accept that the retina, in a myopic eye, is extended or stretched over a bigger size than ordinary range and this stretching of the sclera will results in addition to the hereditary and biochemical factors in such degeneratios.[9]

After some time, the external layer of the eye, known as the sclera, likewise extends because of powers like IOP level(inward eye weight) and this extending of the sclera is thought to prompt retinal degeneration.[10]

In the hereditary theory, the retinal changes are thought to be an unavoidable, inherited process.

Aim of the study

Aim of the study was to focus on peripheral retinal degeneration in subjects with different degrees of myopia , and compare the relative incidence of these degenerations in those subjects.

Method

This study include myopic subjects attended out patient clinics in Diwaniya Teaching Hospital during the period from 1st Dec. 2014 to 1st of March 2015, exclusion criteria include subjects with cataract, glaucoma , previous eye surgery, chronic allergy and systemic diseases.

Every subject was sent for visual acuity assessment , refraction and anterior segment examination was performed with slit lamp (Haag Streit) .

Fundus assessment was done after proper dilatation for the presence of peripheral retinal degeneration through indirect ophthalmoscope using Keeler indirect ophthalmoscopy then using +90 Diopter lens with the slit lamp bimicroscopy and with the use of Goldman three mirror and the finding in the peripheral retina were recorded.

Subjects enrolled in the study being divided into four groups according to the degree of myopia :

First group with refraction from 0to -3 Dioptre

Second group with refraction from -3 to-6 Dioptre

Third group with refraction from – 6 to -9 Dioptre

Forth group with refraction <-9 Dioptre

Results

The study included 237 patients with a mean age of 41.93 ±13.16 years and an age range of 18-65 years. Male patients accounted for 131 (55.3%) whereas female patients accounted for 106 (44.7%) with a male to female ratio of 1.24: 1. Mean refraction was -4.72 ± -3.05 D and ranged from -18.1 to -1.1 D. lattice degeneration was found in 64 patients (27.0%), while Snail track degeneration was found in 11 patients (4.6%). Classification of patients according to degree of refraction is shown in table 1. Roughly speaking, with carful inspection of table one it appears that when the degree of

refraction is higher, the rate of Snail track and lattice degeneration higher.

Table 1: Classification of patients according to refraction

Degree of refraction	Number (%)	Lattice degeneration (n, %)	Snail track degeneration (n, %)
> -3.0 D	103 (43.5)	0 (0.0)	0 (0.0)
-6 to -3 D	71 (30.0)	25 (35.2)	6 (8.5)
-6 to -9 D	47 (19.8)	34 (72.3)	3 (6.4)
< -9 D	16 (6.8)	5 (31.3)	2 (12.5)
Total	237 (100.0)	64 (27.0)	11 (4.6)

Figure 1 and figure 2 showed the absence of significant impact for age for the presence of Snail track and lattice degeneration. Mean age of patients with Lattice degeneration was 42.05 ±13.86 years versus 41.88 ±12.93 years for those who were negative for lattice degeneration (P=0.933). In addition, the mean age of patients with Snail track degeneration was 42.27 ±16.68 versus 41.91 ±13.01 years for those who were free of Snail track degeneration (P=0.929). Neither Snail track degeneration nor lattice degeneration showed significant association with gender, as shown in table 2.

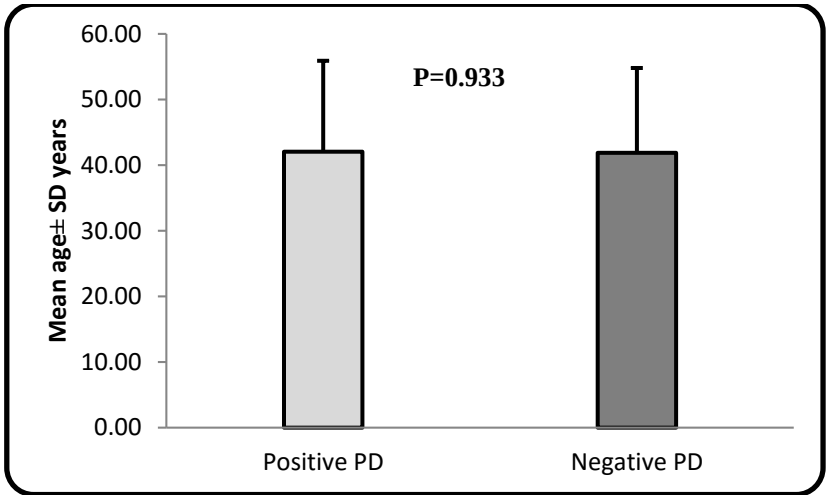

Figure 1: Mean age of patients with Lattice degeneration in comparison to patients free of degeneration

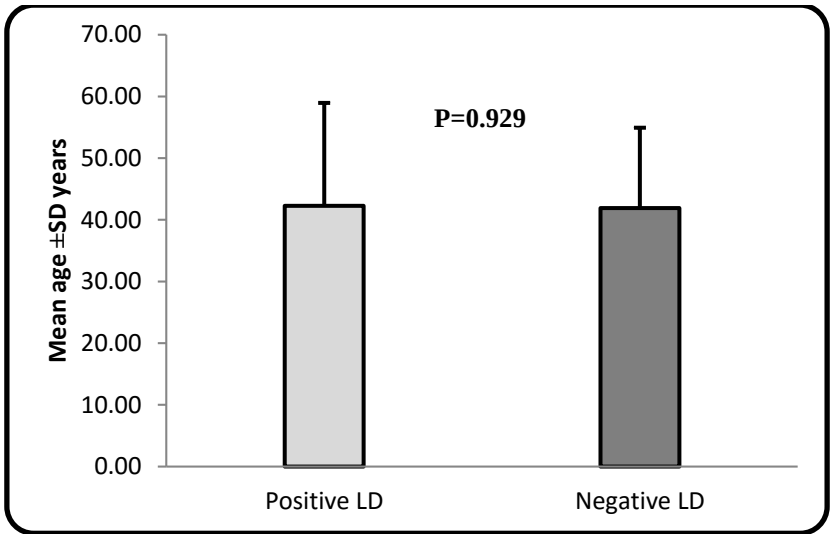

Figure 2: Mean age of patients with Snail track degeneration in comparison to patients free of degeneration

Table 2: Association between gender and peripheral retinal degeneration

Retinal Degeneration	Male n (%)	Female n (%)	χ^2	P
lattice degeneration	34 (26.0)	30 (28.3)	0.164	0.686
Snail track degeneration	8 (6.11)	3 (2.8)	0.777	0.378
Total	131	106		

Mean refraction was significantly higher in patients with Lattice and Snail track degeneration in comparison with patients free of retinal degeneration, P<0.001 and =0.009, respectively, as demonstrated in table 3. There was significant positive correlation between degeneration and degree of refraction as shown in figures 3 and 4.

Table 3: Mean refraction in patients with peripheral retinal degeneration

Degeneration	Mean refraction in Positive cases	Mean refraction in Negative cases	P
Lattice degeneration	-7.20 ±2.28 D	-3.81 ±2.79 D	<0.001
Snail track degenration	-7.36 ±3.58 D	-4.59 ±2.98 D	0.009

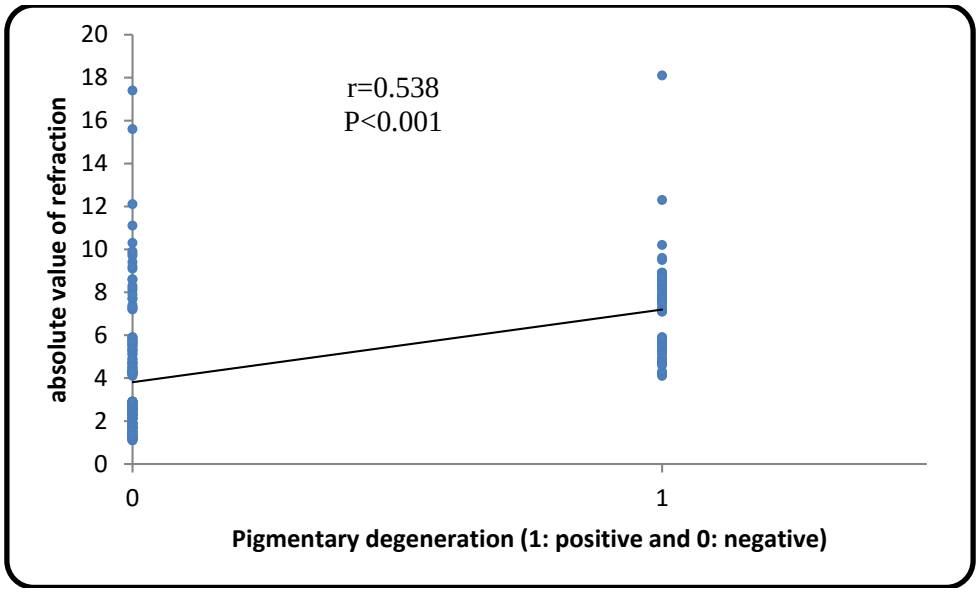

Figure 3: Correlation between lattice degeneration and refraction

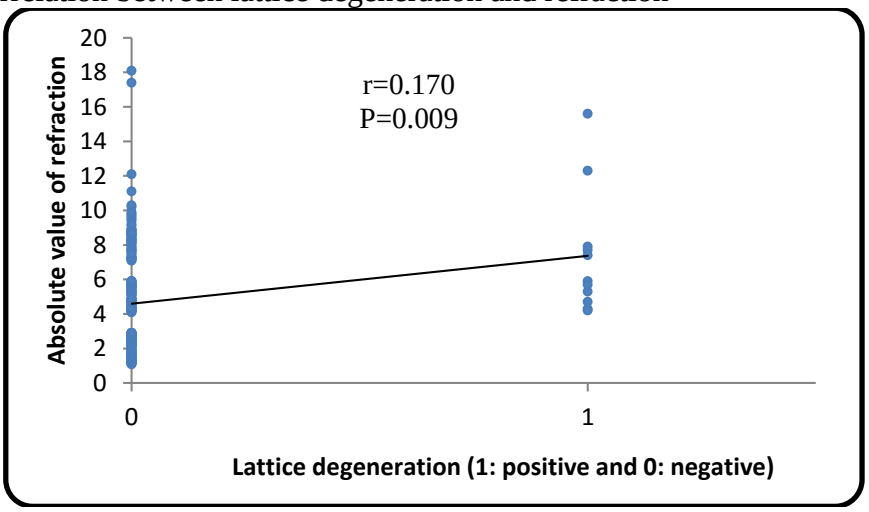

Figure 4: Correlation between Snail track degeneration and refraction

Discussion

Myopia being a standout amongst the most well-known eye issue on the planet, it include a complex of eye problems that extend from the cornea to the macula, this complex could be present as a whole or just a apart of it.

The rate and pervasiveness of myopia are expanding. For instance, in the mid 1973, just around 14 percent of Americans were myopic. Be that as it may, by 2005, nearsightedness predominance in the United States had developed to almost 25 percent of the populace[11] .

Simple myopia for the most part does not build a man's danger for eye wellbeing issues. Be that as it may, moderate and high degree myopia at times are connected with genuine, vision-debilitating symptoms. When this happens in instances of moderate or high myopia, the term degenerative myopia is used

Degenerative Myopia is not the same as the basic refractive myopia that influences such a variety of individuals around the globe. Degenerative Myopia is a to a great degree high measure of partial blindness that causes a noteworthy modification of the shape or globe of the eye, which may prompt significant vision misfortune[12] .

Lattice retinal degeneration is an imperative danger variable for the development of rhegmatogenous retinal

detachment , in spite of the fact that Lattice degeneration (for instance) present in around 8% of the populace , its recorded in around 40 % of rhegmatogenous retinal detachemnt cases"[13]".

Most likely this is a result of irregular vitreo-retinal attachments and early liquefaction of vitreous , so early location of these progressions and utilization of laser treatment for those adjustments in particular gathering of patient with high hazard factors"[2]" are critical in avoidance of rhegmatogenous retinal detachment in huge number of patients .

Myopia symptoms could be innate , just simple blurry vision does not affect the patient normal life especially in low demands subjects , even in those ones serious complications could happen , that's why a general advice for all subjects to examine their eyes is a good practice , other peoples have myopia with a large spectrums of associations : myopia could be happen with cataract especially posterior sub-capsular one, glaucoma like pigmentary one or other types [14] and serioes complication in the posterior segment of the eye like early liquefactions of vitrous humour with lattice degenerations and other forms of peripheral degenerations which might lead to retinal detachments .

Systemic associations are also common with myopia ; a large number of systemic syndromes like Marfan , Ehler Danlos are usually associated with myopia.[15]

A study done in Hong Kong by Lam DS, Fan DS, Chan WM, et al "[3]"was to discover the predominance and attributes of Lattice retinal degeneration in Chinese grown-ups with high myopia presume that " A high commonness of lattice retinal degenerations was found in grown-up Chinese high myopes. The incidence of retinal holes was emphatically associated with high myopia

Other study done in Milan , Italy by Pierro L, Camesasca Fl "[4]" was to discover the relationship between the incidence of lattice chorioretinal changes and the axial length of the myopic eyes, they found no critical connection between the axial length and the occurrence of lattice degeneration .

So other study with larger number of subjects and taken another factors like axial length in consideration are recommended.

Recommendations

Each subjects with any degree of myopia have to undergo a thorough & precise eye examination especially posterior segment to check for the presence of peripheral degenerations and avoid serious complications .

Conclusion

Peripheral retinal degeneration are more common in patient with high myopia . although there is no clear cut degree in refraction below which no degeneration can be present.

Peripheral retinal degeneration could happen in patient with low or moderate myopia as well .

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