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OCULAR COMPLICATIONS IN WOMEN USING ORAL CONTRACEPTIVES

Ophthalmology

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ABSTRACT

Aims and Objectives: To find out the incidence and ocular manifestations in women taking oral contraceptives along with time taken for the ocular symptoms to recover after stopping the oral contraceptives.

Methods: This study was conducted at BPS GMC Khanpur Kalan Sonepat Haryana in joint collaboration of Ophthalmology and Gynaecology departments with due ethical clearance, no conflict of interest and with proper consent of all study subjects .This was a case control study of 8 months duration in which two groups each of 500 sample size were taken. Group A included women using oral contraceptives for continuous duration one year and group B, in which women had not consumed oral contraceptives at all.

Result: We have taken only ocular side effects of subjects of both the groups and ruled out the social status as we have mostly rural and grade 3 city populations. The parity with all was not common, but mostly was multiparous. There is slight increase in conjunctivitis (3.4%) in OC users than (2.2%) in non users. In case of corneal edema a clear relation between O.C. users (4.6%) and non users (2.6%) was found. Contact lens intolerance was also 6 times more in O.C. users (5.2%) and (0.6%) in non users. There was more than 2 times increase in glaucoma in users (3.8%) and (1.4%) in non users. There was slight increase in prevalence of lacrimal disease (8.4%) in users than (6.2%) in non users. Same result was with retinal vascular disorder 3 times more (0.6%) in users as compared to (0.2%) in non users. No clear relation was established between cataract and oral contraceptive use. Other ophthalmic complications of Oral Contraceptives have been reported like acute maculoneuropathy, macular hemorrhage, CRVO, CRAO and perivasculitis have been reported ([1]).

Conclusion: A statistical significant relationship was established between conjunctivitis due to corneal edema and contact lens intolerance, glaucoma, lacrimal disease (Dry eye) and retinal vascular disorders between O.C. users and non users.

Large number of case reports may represent a low overall incidence or may be normal findings in the population as a whole or may be caused by other systemic factors ([2]).

KEYWORDS:

OC: Oral Contraceptives, OCT: Ocular Coherence Tomography, CRVO: Central Retinal Vein Occlusion, BRVO: Branch Retinal Vein Occlusion, CSR: Central Serous Retinopathy, VEGF: Vascular Endothelial Growth Factor

INTRODUCTION

Oral contraceptives are drugs that are used to control pregnancy. Commonly called as birth control pills .They are a very effective method of birth control but do not prevent spread of HIV and other sexually transmitted diseases([3]). In 1965, first time Cogan drew attention to the possibility of neuro ophthalmic complications of oral contraceptive agents ([4]) .From the clinical case reports and the approximate number of women taking pills, the incidence of ocular side effects of Oral Contraceptives can be calculated as 1: 230,000 in United States, Canada, and Australia, 1:80,000 in German federal republic and 1:14000 in Great Britain ([5]).The overall prevalence of ocular complications related to Oral Contraceptives in Great Britain in 1964 was 0.07 %([6]).

MATERIAL & METHODS

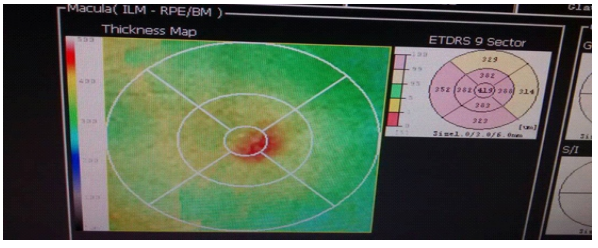
Non randomized, cross-sectional study was conducted at BPS GMC Khanpur Kalan Sonepat Haryana in joint collaboration of two departments Ophthalmology and Gynaecology with due ethical clearance, no conflict of interest and with proper consent of all study subjects. Patients of age 20 to 35 years ±5 years are included where as Women older than 40 years ,who had pregnancy ,had h/o ocular inflammation in past 3 months , ocular surgery in past 6 months and having systemic diseases like hypertension, Cardiovascular Diseases, Diabetes Mellitus and smokers were excluded from the study in both the groups. All investigations including complete blood examination especially APTT (Activated Partial Thromboplastin Time) and ocular examination like complete corneal (dry eye tests i.e. schirmers test, corneal edema using slit lamp), Glaucoma (NCT) and Retinal (Fundus, B Scan and OCT) and Tonometry (NCT) were done. Combined oral contraceptive pills which are in government supply were taken into consideration for the study.

- Mala N Levonorgestrel 0.15mg , ethinyl estradiol 0.03 milligrams
- Yamini Drospirenone 3 milligrams, ethinyl estradiol 0.03 milligrams
- Loette Levonorgestrel 0.01 milligrams, Levonorgestrel 0.10 milligrams
- Femilon .02 ethinyl estradiol, 0.15 milligrams of desogestrol
- Eye diseases that were examined for conjunctivitis, corneal edema and contact lens intolerance, retinal vascular lesions, glaucoma and cataract.The first ocular symptom of disease presented was analysed and the drug was withdrawn and likewise was also done in second group. Duration of symptoms to revert back to normal was noted.

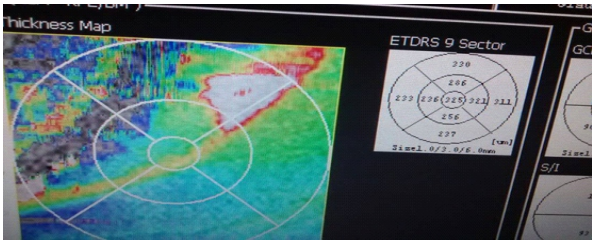
RESULTS

In our study we have taken only ocular side effects of mostly multiparous subjects of both the groups of age 20 to 35 years ±5.There is slight increase in conjunctivitis (3.4%) in OC users than (2.2%) in non users which was mostly in patients having Contact lens Intolerance and Corneal edema and frequent removal of lens may be one of the factors responsible for increased conjunctivitis in this study

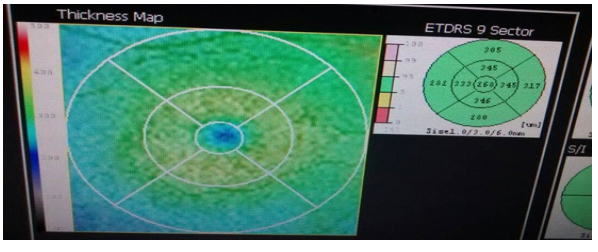
group. As social status was same in both groups it may be a risk factor but could not be taken into consideration. Out of total 7 cases of cataract in both groups 2 had history of trauma and in other five exact causes could not be determined. In case of corneal edema a clear relation between O.C. users (4.6%) and non users (2.6%) was found. Contact lens intolerance was also 6 times more in O.C. users (5.2%) and (0.6%) in non users. Mostly the patients who had contact lens intolerance had corneal edema. There was more than 2 times increase in glaucoma in users (3.8%) and (1.4%) in non users. There was slight increase in prevalence of lacrimal disease (8.4%) in users than (6.2%) in non users. Same result was with retinal vascular disorder 3 times more (0.6%) in users as compared to (0.2%) in non users. 1 subject using oral contraceptives reported CRVO having Retinal Hemorrhages in all quadrants ,macular edema and vitreous hemorrhage and in one subject BRVO in Left Eye in superior temporal quadrant. Significant macular edema (419 µm) was seen with help of OCT as shown in fig (1). In the first case anti-VEGF Lucentis 0.5 mg was given and central macular thickness decreased to 325µm as shown in fig(2) and subsequently it was repeated after one month and it further decreased to 268µm as shown in fig (3). In both the cases the oral contraceptives were immediately withdrawn and the signs and symptoms took 3 months to resolve. One patient not taking oral contraceptives complained of decreased vision .OCT revealed Central serous chorioretinopathy. Fundus Flourescein Angiography was done and ink blot pattern which increased in late phase was noted. A statistical significant relationship was established between corneal edema, contact lens intolerance, glaucoma, lacrimal disease (Dry eye) and retinal vascular disorders between O.C. users and non users as shown in table 1. No clear relation was established between cataract and oral contraceptive use. Other ophthalmic complications of Oral Contraceptives have been reported like acute maculoneuropathy, macular hemorrhage, CRVO, CRAO and perivasculitis have been reported.



Significant Macular Edema as shown in fig (1).



Macular edema decreased after Lucentis Injection (First dose) fig (2)



Macular edema decreased after repeat Lucentis Injection as shown in fig (3)

Table 1
Observations:

S.No.	Ocular Symptoms	Group 1 (taking Oral Contraceptives) No of cases	Group 2(Not taking Oral Contraceptives) No of cases
1.	Conjunctivitis	17 (3.4%)	11 (2.2%)
2.	Corneal edema	23 (4.6%)	13 (2.6%)
3.	Contact lens Intolerance	26 (5.2%)	3 (0.6%)
4.	Glaucoma	19 (3.8%)	7 (1.4%)
5.	Cataract	3 (0.6%)	4 (0.8%)
6.	Lacrimal Diseases (Dry eye)	42 (8.4%)	31 (6.2%)
7.	Retinal vascular diseases (R. vascular occlusion)	3 (0.6%)	1 (0.2%)
8.	Vitreous hemorrhage	2 (0.4%)	2 (0.4%)
9.	Retinal Hemorrhage	6 (1.2%)	2 (0.4%)
10.	Central Serous Retinopathy	Nil	1 (0.2%)

DISCUSSION

Comparing ocular problems like conjunctivitis there is increase in users than in non users this is mainly due to contact lens intolerance and corneal hydration .Frequent removal of contact lenses due to intolerance and rubbing of eyes frequently due to edema which blurs vision leads to conjunctivitis. According to Valerive Q Wren,OD Dry eye and contact lens intolerance is due to decreased tear secretion, steepening of corneal curvature and corneal edema due to hypoxia as there is decreased component of precorneal tear film.([7]). In case of Glaucoma we have two times increase in users than non users but NHANES 2005-2008 center for disease control (National Health and Nutrition Examination Survey) revealed women who have used birth control pills three years or longer have a 5% chance of developing glaucoma as opposed to a 2.5% risk in general population ([8]).In the study conducted by Vessey et al. ([9]) retinal vascular diseases were the only main that could be correlated with oral contraceptives. Kirwan et al. ([10]) reported that women less than 35 years taking oral contraceptives 66% had retinal vein occlusion. This percentage is very high as compared to our results. One of the possible reasons could be social status of our rural population.P .Shiva Reddy has also mentioned the ocular side effects of Oral Contraceptives blurred vision, muscae volitantes ,retinal edema, macular edema([11]). Anthony Kwong, O.D. Sam s club independent doctor of optometry. According to National Eye Institute women who take estrogen only hormone replacement therapy are 70% more likely to develop dry eye while women using both estrogen and progestron carry a 30% increased chance of dry eye. Glaucoma is another serious condition that can develop by use of oral contraceptives. The disease is characterised by damage to nerve tissue resulting in gradual loss of peripheral vision. It is not entirely clear that optic nerve cells contain estrogen receptors that play a role in protecting the eyes from age related decline. Contraceptives may interfere in that process by lowering estrogen levels .A study of 2005-2008 data from the centers for Disease Control National Health Nutrition Examination survey has revealed that women who have used birth control pills for 3 years or longer have 9.5% risk of developing glaucoma as opposed to a 2.5% risk in general population

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