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COMPARATIVE STUDY OF LIPID PROFILE AMONG CATARACT PATIENTS AND CONTROL

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Abstract:

The present study was conducted to compare the lipid profile among the cataract patients and controls. A total of sixty (60) blood samples were collected 30 from the cataract patients and 30 from the controls. All the biochemical parameters such as cholesterol, triglycerol, HDL LDL and glucose were measured as per reported methods. Among the biochemical parameters Cholesterol was significantly ($p<0.05$) decreased in patients compared to controls. In other parameters like Triglyceride, HDL and LDL we found minor variation in both cases and controls. Regarding to correlation among this we found strong as well as weak association between the different biochemical parameters.

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INTRODUCTION:

Globally, cataract accounts for 50% of blindness and remains the leading cause of visual impairment all over the world, despite improvements in surgical outcomes [1]. This number is expected to rise due to an aging population and increase in life expectancy [2]. Cataract, an opacification of the crystalline lens in the eye, can be caused by many factors including the natural aging process, metabolic abnormalities, nutritional disorders, chronic ocular inflammation and trauma. Diagnosis is made with ocular examination using slit-lamp bio microscopy. Although cataracts are not preventable, their surgical treatment is one of the most cost-effective [3]. The cure for cataract is surgery. However, this surgery is not equally available to all, and where it is available it does not produce equal outcomes [4]. Surgical removal of the cataract is currently the only treatment option once the lens has opacified. This is usually accompanied by implantation of an intraocular lens (IOL) to replace the focusing power of the natural lens [5]. Each participant underwent best -corrected distance visual acuity measurement with Snellen chart. The Snellen eye chart is used, with rows of letters decreasing in size to determine how clearly a person can actually see [6]. The preferred practice pattern of the american academy of ophthalmology recommends Snellen chart visual acuity tests as the best guide for appropriateness of surgery with respect to the patient's functional and visual needs, environment, and risk factors. Visual acuity screening is a widely used approach to identify reduced vision [7]. Visual acuity of 6/6 (20/20) as measured on the Snellen chart is usually considered normal. Visual acuity, the sharpness of near and distance vision, is tested separately for each eye [8]. One eye is covered with a piece of paper or the palm of the hand placed lightly over the eye to allow testing of the distance and near vision in the opposite eye via reading the letters or telling the direction of the letter on the chart [9]. A single primary cause of senile cataract probably does not exist. Research to date has revealed the multifactorial nature of cataract formation in man: several risk factors working concurrently lead to the loss of lens transparency [10]. It is generally accepted that age, corticosteroid use, ionising radiation, diabetes, malnutrition, oxidative stress, dehydration crisis, etc., may accelerate the rate of cataract formation in humans. Some of the risk factors, diabetes, smoke (household fuel and cigarette smoking), nutritional status, toxic drugs and chemicals (i.e., cortico steroids, phenothiazine's, mitotic cholinergic, metals and others), blood pressure (Elevated blood pressure is closely associated with the presence of cataract) and

family history (families with cataract prevalence).

PATIENTS AND METHODS:

Present study was conducted in Institute of Biochemistry, university of Jamshoro to compare the cataract patients with control. The study population consisted of sixty (60) participants between the ages of 30 years and above, of whom 30 were cases and 30 were controls. Cases and controls were general ophthalmology in-patients seen at from September 2016 to October 2016. All procedures used in Sindh Institute of Ophthalmology & Visual Sciences (SIOVS) eye Hospital in Hyderabad studies were approved by the Institute of Biochemistry, Sindh University Jamshoro and SIOVS eye Hospital. In patients visiting the eye hospital were selected on the basis of presence of cataract in one or both eyes as (cases). The diagnosis is made with ocular examination using slit-lamp biomicroscopy after dilatation with 1.0% tropicamide (Mydriacy) 2.5% Phenylephrine hydrochloride (Neosynephrine) reagents by optometrist, followed by referral to an ophthalmic surgeon for confirmation of the diagnosis and management. For each patient (case), a healthy eye (normal eye) without cataract was considered for the study as controls. The cases and controls were of the different age, sex, related or unrelated and resided in the same area of the city. Cases were adult of 30 years and above with low vision defined as visual acuity of less than 6/18 but equal to or better than 3/60 (Blindness' is defined as visual acuity of less than 3/60). The controls were different age, sex, and adult of 30 years and above with visual acuity not worse than 6/9 with no correction in both eyes, neither operated with no significant evidence of cataract in one or both eyes. The objectives and the importance of the study were explained to the people both in the local dialect and the Sindhi language. The in-patients were given the opportunity to ask questions for clarification. If they consent, qualified participant were given the consent form, and explain as to how to fill it. Approved questionnaire were administered to the qualified participant's. Anthropometric measurements as well as blood pressure were taken by qualified nurses. Visual acuity and other diagnosis of cataract status were performed by a specialist ophthalmologist. In addition to a clinical examination, data collection during the study included a personal data, anthropometric measurements, history of some known risk factors of cataract. Participants were asked to come for laboratory investigation at the same day while the lipid profile was also explored and after collecting data it will be analyzed in SPSS.

RESULTS:

In present study we found that the highest percentage (40%) of patients belongs to age 51-60. In present study Cholesterol level in cataract patients was 168 ± 63.4 compared to control 183.9 ± 56.7 . We found low concentration of cholesterol in patients compared to control. Variation in Cholesterol level may due to intake of low quality oil and ghee in patients. According to our finding we found normal values of cholesterol in patients as well as controls.

In present study Triglyceride level in cataract patients was 202.03 ± 85.45 compared to control 202.7 ± 129.3 . Mean concentration of HDL in patients and control is given in Table. 3.4 and Figure. 3.3. In present study

HDL level in cataract patients was 33.679 ± 12.69 compared to control 36.77 ± 11.35 .

Mean concentration of LDL in patients and control is given in Table.3.4 and In present study LDL level in cataract patients 112.258 ± 42.3 was compared to control 112.7 ± 11.35 . We found equal concentration of LDL in both patients and controls.

In present study Total Lipid level in cataract patients 774.5 ± 195 was compared to control 815.9 ± 295.9 . We found high concentration of Total Lipid in controls as compared to patients.

TABLE 1: SHOWS THE AGE WISE PERCENTAGE OF PATIENTS

Age Group	No. of Cases %	Male	Female	Married	Unmarried
30-40	4 (13.33%)	0%	4(100%)	3(75%)	1(25%)
41-50	4(13.33%)	3(75%)	1(25%)	4(100%)	0%
51-60	12(40%)	1(8.33%)	11(91.67%)	12(100%)	0%
61-70	10(33.33%)	5(50%)	5(50%)	10(100%)	0%
Total %	30(100%)	9(30%)	21(70%)	29(96.66%)	1(3.33%)

TABLE 2: COMPARISON OF LIPID PROFILE AMONG THE CATARACT PATIENTS WITH CONTROL

Category	Cholesterol Mean±S.D	Triglyceride Mean±S.D	HDL Mean±S.D	LDL Mean±S.D	Total Lipid Mean±S.D
Patient	168 ± 63.4	202.03 ± 85.45	33.679 ± 12.69	112.258 ± 42.3	774.5 ± 195
Control	183.9 ± 56.7	202.7 ± 129.3	36.77 ± 11.35	112.7 ± 11.35	815.9 ± 295.9

DISCUSSION:

In diabetes mellitus an elevated level of glucose is seen in the aqueous humor. Glucose is transported to lens from aqueous humor via facilitated transport. BMI indicates the total body mass and the average value of BMI in patients was 26.96 ± 6.92 compared to 27.04 ± 6.78 controls. It has been suggested that the incidence of cataract rises exponentially with the age after fifty years. Regarding to other ages we could not find much patients. In present study we found highest percentage of male patients compare to female patients. Some numerous studies have an association between age and cataracts that age is the most important risk factor and 80% of patients have age-related cataract. We found high concentration in both patients and controls. Another Asian study by Rajiv Raman and colleagues revealed high serum Triglyceride as a risk factor for cataract development [11]. Meyer et al found low serum HDL in cataract patients [12]. Similarly, animal studies have also shown decreased serum HDL as a risk factor for cataract development (Tsutsumi K et al 1999). In our study we found low high density lipoprotein concentration possibly due to diet or abnormality in liver function.

CONCLUSION:

Present study concluded that among the biochemical parameters of lipid profile we found significantly decreased cholesterol, HDL, LDL, and total body fat of patients. The comparison of cholesterol, HDL, LDL, and total body fat of patients is low concentration in blood as compared to controls.

REFERENCES:

- Abou-Gareeb I, Lewallen S, Bassett K, Courtright P. Gender and blindness (2001): a meta-analysis of population-based prevalence surveys. *Ophthalmic Epidemiology*. 8:39-56.
- Allen and Benson (1935). *J Arner. Med. Assoc* 105: 795.
- Archer. A. G. (1981). Cataract formation in anorexia nervosa, *Br. Med. J* 282: 274.
- Balasubramanian, D. K, Seetharam Bhat and Gullapalli N. Rao (1990). Factors in the prevalence of cataract in India-Analysis of recent Indo-US study of age related cataracts, *Cum. Ski.* 59(10): 498-505.
- Baltussen R, Sylla M, Mariotti S. Cost-effectiveness analysis of cataract surgery a global and regional analysis. *Bull World Health Organ.* 2004;82(5): 338-45.
- Barber, G W , (1973) "Human cataractogenesis: A Review . Exp. Eye Res 16; 85-94.
- Berger, J. Shepard, D., Marrow. F., Taylor, A. (1989). Relationship between dietary intake and tissue levels of reduced and total vitamin C in the non-scorbutic guinea pig, *J Nutr* 119: 734-40.
- Bhat, K . (1983). Distribution of HMW proteins and crystallins in cataractous lenses from undernourished and well-nourished subjects, *Exp. Eye Res.* 60: 153-57.
- Bhattacharya, M. H., Whelton, B. F. D., Stem, P. H., Peterson, D. P. (1988). Cadmium accelerates bone loss in ovariectomized mice and foetal rat limb bones in culture, *Proc Natl. Acad. Sci. U.S.A.* 85: 8761-65.
- Bunce, G. E., Hess, J. L. (1976). Lenticular opacification in young rats as a consequence of maternal diet low in tryptophan and/or vitamin E, *J Nutr.* 106: 222-29.
- Raman R, Pal SS, Adams J,Rani PK, Vaitheeswaran K, Sharma T (2010). Prevalence and Risk Factors for Cataract in Diabetes: Sankara Nethralaya Diabetic Retinopathy Epidemiology and Molecular Genetics Study, Report No.17. *Invest. Ophthalmol. Vis. Sci*;51(12):6253-6261
- Meyer D, Parkin D, Martiz FJ, Liebenberg PH (2003). Abnormal serum lipoprotein levels as a risk factor for the development of human lenticular opacities. *Cardiovasc JS Afr*;14: 60-64