

STUDY OF ETIOLOGICAL FACTOR OF PEDIATRIC CATARACT IN GORAKHPUR AND SURROUNDING REGION

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Abstract

Cataract is the opacification of the eye lens. Based upon the age at appearance, cataract can be classified as congenital, infantile, juvenile, presenile and senile. Pediatric cataracts are responsible for more than 1 million childhood blindness.

Aims and Objectives:

1. To know the incidence of different varieties of pediatric cataract.
2. To know about the etiology of pediatric cataract in Western UP.

Material and Method:

This is a prospective observational study for 1 year with the sample size of 160 patients.

Result and conclusion:

It could be concluded that in pediatric age group, maximum percentage of patients had non traumatic type cataract, out of that idiopathic was found to be more common. Morphological total type cataract was also common. In traumatic cataract, most common cause included arrow - bow / wooden stick injury, followed by cracker and stone injury.

Introduction

Cataract is the opacification of the eye lens. Based upon the age at appearance, cataract can be classified as congenital, infantile, juvenile, presenile and senile. Pediatric cataracts are responsible for more than 1 million childhood blindness in Asia¹. In developing countries like India, 7.4 - 15.3% of childhood blindness is due to cataract²⁻⁴. The prevalence of cataract in children has been estimated between 1-15/10,000 children⁵.

In eastern UP (Gorakhpur, Deoria, Maharanganj, Mau, Gazipur), the prevalence of pediatric cataract seems to be high as the number of children presenting with the problem is significant. Pediatric cataract is the leading cause of childhood blindness. Its high incidence in Eastern UP gives an opportunity to know about its prevalence as well as causative factors. This may provide glimpse into how to provide improved treatment, as also decrease the incidence of childhood blindness in India.

Aims and Objectives:

1. To know the incidence of different varieties of pediatric cataract.
2. To know about the etiology of pediatric cataract in Western UP.

Material and Method

This is a prospective observational study for 1 year (July 2017-July 2018) in Ophthalmology Department of BRD Medical College, Gorakhpur; including camps (school & rural), organized by the department.

Sample size -160

Data collection: Data was collected from patients coming to the Ophthalmology Department, Gorakhpur district hospitals including camps.

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Inclusion criteria

Age: 0-15 years

Unilateral, bilateral & traumatic cataract.

A team of ophthalmologists and pediatricians attached to the centre examined all the patients preoperatively. For preoperative examination, the pupil was dilated using atropine eye drops. Children who did not cooperate were examined by giving them short-term general anesthesia under operating microscope. The type of cataract was determined using slit lamp bio-microscopy or operating microscope. To find out any other ocular pathology, vertical -horizontal corneal diameter, intraocular pressure, keratometry, axial length were measured and fundus status evaluated with indirect ophthalmoscope. Biochemical investigations such as urine sugar and blood glucose level were performed in all patients.⁸ TORCH test was done only in children less than one year of age with central nuclear or total cataract unilaterally or bilaterally and whose mothers revealed a history of illness accompanied by a rash during the pregnancy. The complete clinical details of the patient including cataract type and other ocular and non-ocular disorders and laboratory investigations were recorded. Information regarding proband cataract history, parental health history, prenatal and postnatal history, child's birth history, consanguinity, socioeconomic and demographic status were also noted. Informed consent was obtained from all the families included in this study. Clinical information of all patients was analyzed according to their etiology. The cases were divided into traumatic and non-traumatic. The traumatic patients were further classified based on the causes of trauma. The non-traumatic cases were classified into four groups based on the following considerations.

A-Hereditary: This group included cases with positive family history.

B. Secondary: This group-included case with any other ocular disease, metabolic –systemic diseases, and cataracts associated with known syndromes. The syndromic cataracts were determined based on the clinical observation. The metabolic disorders were confirmed by the proband's history and earlier diagnosis of referring pediatrician.

C. Rubella: This group-] included cases caused by diagnostically confirmed congenital rubella syndrome.

D. Undetermined: This group included idiopathic cases with no known cause.

Observation

Table- 1: Gender distribution in study

Gender	Frequency	Percentage
Male	100	62.5%
Female	60	37.5%

Table-2: Etiology of non traumatic cataract

Cause	Unilateral/%	Bilateral/%	total
Hereditary	1(.73%)	8(5.84%)	9(6.57%)
Rubella	1(.73%)	4(2.92%)	5(3.65%)
Secondary	2(1.46%)	18(13.14%)	20(14.60%)
Undetermined	33(24.09%)	70(51.09%)	103(75.18%)
Total	37(27.01%)	100(72.99)	137(100%)

Table-3: Etiology of cataract in children less than 1 year age

Causes	Unilateral/(%)	Bilateral (%)	Total
Non traumatic			
Hereditary	0	5(6.17%)	5(6.17%)
Rubella	1(1.23%)	2(2.46%)	3(3.70%)
Secondary	1(1.23%)	3(3.70%)	4(4.94%)
Undetermined	27(33.33%)	40(49.38%)	67(82.72%)
Traumatic	2(2.46%)	0	2(2.47%)
Total	31(38.27%)	50(61.73%)	81(100%)

Table-4: Morphological type of cataract

Cataract type	Number	Percentage
Total cataract	49	35.32%
Lamellar	29	21.05%
Nuclear	12	8.55%
Posterior subcapsular	6	4.6%
Posterior polar	3	1.90%
Mixed	36	26.0%
Blue dot cataract	1	1.30%
Sutural	1	0.65%
Total	137	100

Table-5: Etiology of traumatic cataract by age

Cause	<1	1-5	6-10	11-15	Total
Crackers	-	2	1	1	4(17.39%)
Wood stick	-	1	4	-	5(21.74%)
Finger	-	1	1	-	2(8.69%)
Chemical	1	-	-	-	1(4.34%)
Hair pins	1	-	-	-	1(4.34%)
Needle	-	1	-	-	1(4.34%)
Wire	-	1	-	-	1(4.34%)
Stone	-	1	1	2	4(17.39%)
Others	-	2	1	1	4(17.39%)
Total	2	9	8	4	23



Result and discussion

This is a prospective observational study for 1 year including 160 patients with 100 (62.5%) male and 60 (37.5%) female patients respectively. In our study we found that 160 patients presented with cataract out of that 137(85.62%) were non traumatic and 23(14.38%)were traumatic. It was found that 81 (50.62%) cataract patients were below 1 year of age and 79 (49.38%) were above 1 year of age.

On study of etiological factor of non-traumatic cataract, we found that maximum number of cataract occurred due to idiopathic causes 103(75.18%), followed by secondary cataract 20(14.60%), hereditary 9(6.57%) and rubella (3.65%) and among that unilateral cataract 37(27.01%) and bilateral cataract 100(72.99%). Similar results were reported by **Haargaard et. al.** Idiopathic cases showed a higher proportion of unilateral cataract and of additional ocular dysmorphism compared with cases of known etiology. The etiology was unknown in 87% of unilateral cases and in 50% of bilateral cases.⁶

On study of morphological of cataract in non-traumatic group we found that maximum percentage was 49(35.37%) of total type of cataract, followed by mixed 36(26.0%) and lamellar 29(21.05%). We found that traumatic cataract maximum times occurred due to arrow bow/wood stick (21.74%), cracker (17.39%) and stone (17.39%).

Conclusion

It could be concluded that in pediatric age group, maximum percentage of patients had non traumatic type cataract, out of that idiopathic was found to be more common. Morphological total type cataract was also common. In traumatic cataract, most common cause included arrow - bow /wooden stick injury, followed by cracker and stone injury.

Awareness programs for pregnant women for concerning precautions during pregnancy and also for keeping records of medications taken during pregnancy might help in future etiological studies. School children must also be educated regarding factors, which can cause traumatic cataract, which might reduce the incidence of childhood cataract.

References

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