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A STUDY OF EPIDEMIOLOGY VISUAL AND STRUCTURAL OUTCOME OF OCULAR TRAUMA 0F ADMITTED PATIENTS AT TERTIARY LEVEL HOSPITAL.

Ophthalmology

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ABSTRACT

AIM-The study was conducted in our department,to analyse the epidemiology ,the clinical profile ,visual and structural outcome in patients having ocular trauma.

Objective-To provide epidemiological data and statistically analyzing and determining various factors related to distribution of ocular injuries in different group.To asses visual and structural outcome and the circumstances most dangerous for poor prognosis.

Material & Method- In this study of one year 102 patient of ocular trauma were admitted ,both anterior and posterior segment examination done, with all needed instrument, Patient were managed both by conservative and surgical.

Result-In this study male were more affected than female,young population were more involved ,most of the patients were reported from near by districts. The incidence of trauma were more in winter.Occupational injury were more,Agricultural injury was more than industrial,Blunt injury was more than penetrating ,Injury by metallic object was more than wooden and lack of protective gear was seen.visal prognosis was bad in delayed presented cases.Structural prognosis was significantly poor in nonintact cases.

KEYWORDS

Epidemiology v,isual, ocular,trauma, outcome

Introduction-

Ocular trauma is an important public health problem, which is preventable, leading to 5% of all cases of blindness.Eye is 3rd most commonly exposed area prone for trauma after hands and feet.Yearly there is loss of about 55 million eye due to trauma across the globe reported by WHO.No age is immune to trauma though it is less commonly encountered in extreme of age.Majority of patients with disastrous effect of trauma fall in the period of their active year.Young are prone to traffic, occupation and assault related ocular trauma.children on the other hand prone to sports related and domestic accident more frequently during playing.Illitracy and poverty ,habit of using indigenous medicine like herbs and other local material following trauma is ramport and is major cause of preventable blindness.Chattisgarh(CG) being the agricultural state injury sustained in field while working is quite common.Eye injury causes life long disability.

The purpose of this study is to report the epidemiological structural and visual outcome of sufficient severity. The burden and pattern of ocular trauma in chhattisgarh are poorly known and not well studied We aim to provide epidemiological data and current trends of ocular injuries to understand the visual and structural out come of ocular trauma to formulate health and safety strategies for prevention of ocular trauma.This study help us to improve our knowledge on management and preventive strategies

Material and Method-

This was a prospective observational and interventional study of all ocular injuries registered and admitted at indoor patient department during a period of one year from march 2015 to march 2016 at department of ophthalmology DR. B.R.A.M hospital at Pt.J.N.M medical college Raipur (C.G) with special reference to age, sex, occupation, educational status, income group, place of injury, time lapsed between injury and first consultation associated complications, seasonal variation, use of preventive measures and final visual and structural out come. Tool utilized were rate, ratio, proportion, incidence, mean, chi square test P value Data entered in micro soft word. During this period 108 cases were taken .who met inclusion criteria, that is all suspected cases of ocular trauma enrolled and admitted in department of ophthalmology willing to participate in this study.

Exclusion criteria consist patient not willing to participate in study, deceased uncooperative or comatose patients,occurance of new injuries during follow up period.

A written informed consent was obtained in every case A proforma was used to collect the details of the injury and other relevant details of the patient

The visual acuity was recorded using Snellens chart .Intraocular pressur was recorded by non contact tonometer and digital tonometry . A comprehensive ocular examination was done using diffuse light and slit lamp. Every detail of anterior segment findings recorded in proforma .

Posterior segment examination was done with direct ophthalmoscope indirect ophthalscope (with or wihout indentation}, slit lamp bio microscope, using 78D and 90D lenses, flouroscien staining, gonioscopy done Xray of head and orbit (antero-posterior and lateral view) gentle B-scan ultrasonography of both eye ,CT scan and MRI was done where ever necessary .Keratometery and A-scan biometery was done wheare ever applicable. Culture and sensitivity of corneal scrape done where ever applicable.Patient were managed both medically and or Surgically. Posterior segment injuries were refered to vitreoretinal surgeon The visual acuity was graded according to World Health Organization criteria of BCVA being ,<3/60 for blindness ,3/60 to <6/60 for economical blindness,6/60 to Age and Sex wise Distribution.6/18 for low vision and 6/18 to 6/6 and above normal vision .Structural outcome was considered good if the structural integrity of the eyeball was maintained and considered poor if the eyeball underwent phthysical changes or was eviscerated or enucleated.

	Male	Female	Total(108)	Percentage	M:F
0-9	16	5	21	19.44	3.2:1
10-19	17	4	21	19.44	4.25:1
20-29	19	4	23	21.29	4.75:1
30-39	10	1	11	10.18	10:1
40-49	14	3	17	15.74	4.67:1
50-59	9	1	10	9.25	9:1
60-69	3	1	4	3.7	3:1
70-79	1	0	1	0.9	1:0

TIME OF TRAUMA

	Winter	Summer	Rainy	Total	%
RTA	10	3	7	20	18.5
Agriculture	2	5	8	15	13.9
Playing	21	8	15	43	39.8
Domestic	7	3	5	15	13.9
Industrial	3	2	3	8	7.4
Assault	1	4	0	5	4.6
Chemical	1	0	1	2	1.8

DISTRRIBUTION BETWEEN TRAUMA AND SEASON

Time	No of Cases	Percentage
12-3	3	2.7
3-6	6	5.6
6-9	23	21.3r
9-12	39	36.1
12-15	9	8.3
15-18	19	17.6
18-21	8	7.4

Injury Type

Injury type	No of Cases	Percentage
Blunt	54	50
Penetrating	44	40.7
Chemical	5	4.6
Thermal	2	1.8
Perforating	2	1.8
Blast	1	0.9

Visual Outcome After Conservative And Surgical Treatment

	Blindness	%	Eco.Blind	%	Low vn	%	Normal vn	%
Surgical	48	41.74	4	3.4	5	4.34	12	10.43
Conservative	11	9.6	4	3.4	7	6.1	24	20.86
Total	59	51.30	8	7	12	10.43	36	31.30

Relation Bitween Time Lapse for Definitive Treatment and Structural Outcome

Date of 1st con	No of Cases	%				Structural outcome	P value
			Intact	%	Not-intact	%	
Same day	15	13.04	11	9.5	4	3.4	Chi^2=5.8, p=0.015 [sig]
1 day	17	14.78	15	13.04	2	1.7	Chi^2=0.71, p=0.39
2days	14	12.17	11	9.5	3	2.6	Chi^2=3.3, p=0.068
3 days	4	3.4	4	3.4			Chi^2=7.2, p=0.006[sig]
4-7 days	13	11.3	13	11.3			Chi^2=2.9, p=0.084
8-15 days	16	13.9	15	13.04	1	0.9	Chi^2=2.2, p=0.13
16-30 days	11	9.6	7	6.09	1	0.9	Chi^2=3.3, p=0.066
>30 days	25	21.47	25	22.60	-		Chi^2=3.5, p=0.07
Total	115		104	90.43	11	9.56	

Result-

In our study period of one year out of total 3589 admission 108 patient admitted with ocular trauma, overall incidence of ocular trauma was 3.02%of all eye ailment. Incidence was higher among male (5.29%) than female, male to female ratio was 4.68:1. In our study no age is immune to eye injury, the youngest patient was aged 2 year who came with penetreting injury with wooden pieces while oldest was aged 78 year who suffred from chemical injury .

It was found to be lesser at extreme of age. our study shows injuries were more common in younger age group 20-29 (21.29%),10-19 (19.44%) and 0-9(19.44%)30-39 (10.18%),40-49 (15.74%).Injuries were found to be less in older age group 60-69(3.7%) and 70-79 (0.9%).

Most number of cases were reported from near by district of Raipur (26.9%),Durg (13%),Balodabajar(6.5%).Lesser no of cases reported from far and predominatly tribal district, Baster(0.9%),kondagaon (0.9%).Higher incidence of trauma was reported in patient from rural area (69.44%) than urban area. Among the varies religious group maximum no of cases were reported among hindu and least no of cases were reported among sikh population(0.9%). Educational status showed ocular trauma in bulk of illeteret patient(89.9%),.In literate group above higher secondry group was the largest(26%) followed by primary school (21.3%), graduate (20%).Our study showed that lower income group formed the largest category (78.7%), followed by middle income group (21.3%). Higher income group did not report any case. Male female ratio were highest among middle income group (6.67:1).

In this study most number of cases reported between 9-12am(36.1%) other time period which showed higher incidence rate were 6-9am(21.3%). Least number of cases were reported between21-24 pm (0.9%). In our study maximum no of cases reported in winter season (38.9%) followed by rainy season (37%). Least no of cases reported in summer season (11.1%). Male female ratio were highest in winter.(3.67:1).Playing sub group (38.8%) most common in winter followed by rainy season (13.9%) least no of cases were reported in summer (7.4%). Road traffic accident related ocular trauma occur more in winter season (6.4%) .In this study ocular trauma was more common in right eye(49.1%)while in left eye it was (43.5%) and (7.4%) cases reported trauma in both eyes.

In our study occupation related injuries were lesser (21.14%)than non occupation related group (76.84%). In occupational injuries most common age group was 40-49 yrs and30-39yrs. In occupational injuries agricultural field related injuries were more commonly reported followed by industrial injury. Nonoccupational injury more common in age group of 0-9 yrs and 10-19yrs.Most common non ocuppational injury was sports related. Incidence of domestic trauma was higher in female than in male . Among all profession maximum number of cases were found in students (43.4%) followed by farmers(16.67%) labourers(7.4%)and housewives(4.6%).Ocular trauma due to metallic injury was most common(38%) followed by wodden object(28.7%) by stone(10.2%).Intraocular injury (85.2%), than extraocular injury(14.8%).In our study 99.1% of ocular injuries occure when patient were not using any protective gear to prevent trauma.

In our study most common injuries were blunt (50%) and penetreting (40.7%). Least common types were perforating (1.8%) thermal (1.8%) and blast (0.9%). In our study most commonly affected structure was eyelid (58.3%), conjunctiva involved as sub conjunctival haemorrhage (13.9%), and chemosis. limbal ischemia was found in 2 cases of chemical injury. Common corneal injury was full thickness tear (21.3%) followed by sealed tear (10.1%) and partial tear (0.9%).FB embedded in cornea were in 4.6% corneal ulcer found in 4 cases .In our study scleral involvement were less (5 cases.)Hyphema was seen in 19.44% and Hypopyon was seen in 15.74%,Exudate were present in 3.7% cases while in 2.8% cases vitreous present in anterior chamber.

In our study iris prolapse/incarseration was a common presentation (13.9%). RAPD was observed in 13% of cases. Traumatic cataract found in 38 cases followed by subluxation /dislocation 4 cases.

Viterous haemorrhage ,most common posterior segment involvement (24%) Optic neuritis was second common presentation (8.33%), Retinal detachment occurred in 4.6% cases .In our study 53.7% shows poor prognosis. Good visual outcome achieved in28.7% cases. Significantly higher no of normal vision was attained in age group 20-29 year. Higher no of blindness was seen in50-59 age group.

In our study 13.04% cases got definitive treatment on the same day,out of which 6.08% attained normal vision and 5.2% eyes had poor visual outcome.14.78% cases got definitive treatment after 1 day out of which 6.95% had poor visual outcome. 3.4% attained normal vision. (12.17%) cases got definitive treatment after 2 days of trauma out of which (10.43%)had poor visual outcome while 1.7% cases attained normal vision.(11.3%) cases got definitive treatment between 4-7 days, 9.6% cases got definitive treatment between 16-30 days .In our

study 60% eye got surgical treatment, out of which 41.74% cases had poor visual outcome 10.43% attained normal vision.(40%) got conservative treatment, 9.6% cases had poor visual outcome ,20.96% attained normal vision.

In our study blunt trauma was found to be (46.96%) out of which 17.39% had poor visual outcome while 20.96% cases had good visual outcome. Peneterating trauma was 38.3% out of which29.6% had poor visual outcome, 2.6% had good visual outcome.Chemical injury was 6.9%.sout of which 1.7% had poor prognosis. Thermal injury was 3.7%, all cases had poor prognosis .Blast injury was0.9% all had poor prognosis.

In our study incidence of evisceration was 10.19%. (46%) case attended health care center on the same date, out of which 37.4%eyes were intact,8.7% cases were evisceatrated. 8.7% cases, attented health center after 1 day maximum of them had intact eye.2.6% cases after 2 days all the eyes were intac t,0.9% after 3 days which were intact 3.4% cases attented a health care center, all the eyes were intact..0

DISCUSSION-

The importance of ocular injuries in causation of blindness has been a subject of discussion since long time. The importance of its consideration is due to rapid increase of industries in our state. Yet large population of state still depends on agriculture. Lack of primary medical facilities, ignorance about seriousness of injury, carelessness, poverty and literacy play an important role in increase incidence of blindness due to ocular trauma.

In our study period of one year out of total 3589 admissions, 108 patients were admitted for ocular trauma. The overall incidence of ocular trauma was 3.02% of all admissions. The incidence was higher in male than in female, that is more likely reflective of their more risk prone life, longworking hour and out door work sport involvement. female mostly stay indoor injury related to outdoor work less in female. No age is immune to eye injury,but most commonly affected age group, was10 -40.this age group indulge in most of outdoor activities ,that's why chances of injury was more .In paediatric age group boys were more affected, the reason that girls in Chhattisgarh do not enjoy the same level of freedom as compared to boy specially in rural area. Most number of cases reported from near by district as transportation, nearby location and presence of a tertiary care center in proximity leads to prompt and better access to quality care service Some of the district do not have facilities and consultant ophthalmologist which might have led to delay in diagnosis and intervention. some tdistrict do not have anaesthetist which hampers giving general anesthesia for paediatric patients.Absence of well equipped eye hospital is also a major problem.All these factor cause delay in getting definitive treatment and leads to unnecessary

In our study most cases were reported late morning because of people are more active and tendency to stay outside home.in late morning hour. Most cases were reported in winter because of fog leading to poor visibility.

In our study trauma was reported most in playing age group which was common in winter. out door play related activities decrease in summer and rainy season' In our study trauma was more common in right eye as it is dominant eye. bilateral injury were due to chemical injury and fire crackers, As CG is agricultural state agricultural related trauma more frequently occurred in rainy seas. Occupational injury was more common in male, absence of female in this group shows lesser involvement in outdoor work. Most common injuries involved were lid and conjunctiva. Corneal tear and post traumatic cataract formed large chunk of severe ocular trauma. Vitreous hemorrhage optic neuritis and retinal detachment were also found frequently

In our study a high incidence of loss of vision was seen, cause was delayed reporting to the hospital with consequent delayed treatment. Significantly high proportion of normal vision was attained in age group 20-29,. Higher proportion of blindness was seen in50-59 years. Visual outcome was found to be better among urban population as rural, conservative treatment had a better visual outcome than surgical, blunt trauma had better visual outcome than penetrating trauma. Structural outcome was poor in non l appointact cases who attend late in those patient trauma was not repairable

Proper health education using preventive measure like using helmet while driving, timely referral to a ophthalmologist and emergencey trauma management are some of the measure that can prevent blindness On the administerative level there is need to appointment of ophthalmologist and equipped hospital staff with facility for general anaesthesia There should be education programme in school,prompt referral services and mass campaigns to spread awareness about ocular trauma to reduce the burdun in society.

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