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The Impact of Covid 19 on Ocular trauma

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Abstract
***Background** : Because of the rapid spreading of COVID-19 people were told not to leave their homes unless for an essential reason. Aim of this study was to evaluate the activity of our Trauma Centre, relative to ocular injury, in two months starting from 1st April 2020 to 31st May , 2020 and to compare it with the same days of 2019 to weight the impact of Covid-19 on ocular trauma.*
***Materials and methods**: Patients managed at Department of Ophthalmology,Government Medical College, Srinagar between 1st April 2020 to 31st May 2020 (COVID-19 period) for ocular trauma were retrospectively included and compared to patients admitted in the same period of 2019 (no COVID-19 period).Clinical records of all participants were examined to obtain information regarding age, sex, mechanism of injury and diagnosis.*
***Results**: During no COVID-19 period, 600 patients were admitted for eye trauma; in the COVID period, patients were 260(56.7% less). During this period, the proportion of children and adolescents with eye injuries decreased (from 25% to 9.6%), while the proportion of males increased (from 70.8% to 79.6%). Regarding the mechanisms of injury, the percentage of falls and sport injuries had the highest decrease (respectively, from 10.8% to 4.6% and from 11.3% to 3.1%), while injuries due to firearm and injuries with plants/gardening had the highest increase (respectively, from 5% to 11.5% and from 13% to 21.1%). These were statistically significant (p value<0.05).*
***Conclusion:** We concluded that due to restrictions, there was dramatic decrease in number of ocular injuries. However injuries due to gardening and firearm had no such impact.*
***Keywords:** covid-19, Ocular trauma, WHO, Mechanism*

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I. Background

On January 30, the World Health Organization (WHO) declared the global state of emergency, and on February 11 gave a name to the new disease, Covid-19, and to the new virus, Sars-CoV-2[5]. On March 12,WHO declared it as pandemic. However, on March 18th, 2020 first case of coronavirus was diagnosed in Kashmir, 65 year old female with travel history of Saudi-Arabia.she was hospitalized at Sheri Kashmir Institute of Medical Sciences.

To reduce the spread of the novel coronavirus (2019nCoV), countries have promoted a range of unprecedented public health responses. These measures aim at reducing the final size of the epidemic as well as its peak in order to decrease the acute pressure on the health-care system.[6]

Kashmir valley was put under lockdown like whole country of India. People were told not to leave their homes unless for an essential reason. Movement of people was strictly limited, forbidding unnecessary travel between towns. Travel was only allowed for "urgent, verifiable work situations and emergencies or health reasons". People are allowed to go outside for one of the following reasons:

- An urgent, demonstrable work-related reason.
- Health reasons
- Situations of need (for example to buy food).

In addition, lockdown was extended to close down all productive activity throughout the territory that is not strictly necessary, crucial, indispensable, to guarantee essential goods and services.

The current restrictions have inevitably modified the Ocular practice, in particular those of the Trauma Centre. Ocular trauma represents a serious public health problem and leading cause of visual impairment[3,4]. Our aim was to evaluate the activity of the Trauma Centre, related to ocular trauma in Kashmir valley in a period from the 1st april 2020 to 31 May 2020 and to compare it with the same days of 2019 in order to weight the impact of Covid-19 on ocular trauma.

II. Materials and Methods

This study was conducted at Department of Ophthalmology, Government Medical College, Srinagar from 1st April 2020 to 31st May 2020 (Covid period). All the patients managed for ocular trauma were retrospectively included in the stusy and compared to patients in the same period of 2019 (no covid period).

Clinical records of all participants were examined in order to obtain information regarding age, sex, mechanism of injury, diagnosis.

According to the mechanism of injury we arbitrarily distinguished 10 subgroups:

1) Manual work
2) Sports trauma;
3) Animal care
4) Gardening/ injuries with plants.
5) Home activities
6) Falls
7) Burns/Corrosive substances
8 Violence
9) Firearm injuries
10) Other/unknown

Statistical analysis

Continuous variables were expressed by the mean and standard deviation (SD) and were evaluated by Student t-test or Mann- Whitney U test. The categorical data were expressed as number and percentage (%) and were evaluated by chi-square or Fisher's exact test. The statistical test level was set as $p<0.05$.

III. Results

In April-May2019 (no-COVID period), in our Trauma Center, there were 600 ocular injuries (16.3% of all patients presenting to department); in the same months of the following year (COVID period) there were 260 ocular injuries (25% of all patients presenting to department) ($p<0.05$). Mean age in no covid period was 38.6 years and in covid period was 45.4 years.

The demographic characteristics, mechanism of injury and diagnosis of eye injuries in the two study periods are reported in Table 1. During quarantine, the proportion of children and adolescents with eye injuries decreased (from 25% to 9.6%, Fig. 1a), while the proportion of males increased (from 70.8% to 79.6%, Fig. 1b). Regarding the mechanisms of injury, the percentage of falls and sport injuries had the highest decrease (respectively, from 10.8% to 4.6% and from 11.3% to 3.1%), while injuries due to firearm and injuries with plants/gardening had the highest increase (respectively, from 5% to 11.5% and from 13% to 21.1%, Fig. 1c). These were statistically significant (p value<0.05). There was a striking 56.7% (Fig. 1d) decrease in the number of eye injuries seen in our department during these two months, which was also statistically significant (p value<0.05).

TABLE 1:Demographic Characteristics

Characteristic	2019 Period	2020 Period
1.Total number of injuries	600	260
2.Sex(m/f)	425/175	207/53
3.Mean Age	38.6	45.4

TABLE 2: Mechanism of injury

Mechanism	2019 Period (%age)	2020 Period (%age)
Manual work	80 (13.3%)	32 (12.3%)
Sports	68 (11.3%)	8 (3.1%)
Animal care	42 (7%)	12 (4.6%)
Gardening/injuries with plants	78 (13%)	55 (21.1%)
Home activities	72 (12%)	22 (8.5%)
Falls	65 (10.8%)	12 (4.6%)
Burns/corrosive substances	25 (4.2%)	5 (1.9%)
Violence	30 (5%)	20 (7.7%)
Firearm injuries	30 (5%)	30 (11.5%)
Other/unknown	110 (18.3%)	64 (24.6%)

TABLE 3: Diagnosis

Diagnosis	2019 Period (%age)	2020 Period (%age)
None	78 (13%)	16 (6.2%)
Foreign body on external eye	212 (35.3%)	94 (36.2%)
Superficial injury (cornea and conjunctiva)	126 (21%)	57 (21.9%)
Subconjuctival Haemorrhage	55 (9.3%)	37 (14.2%)
Eyelid injury	71 (11.8)	24 (9.2%)
Posterior Vitreous Detachment	15 (2.5%)	5 (1.9%)
Hyphaema	12 (2%)	6 (2.3%)
Vitreous haemorrhage	8 (1.3%)	6 (2.3%)
Orbital fracture	8 (1.3%)	5 (1.9%)
Penetrating wound	15 (2.5%)	10 (3.9%)

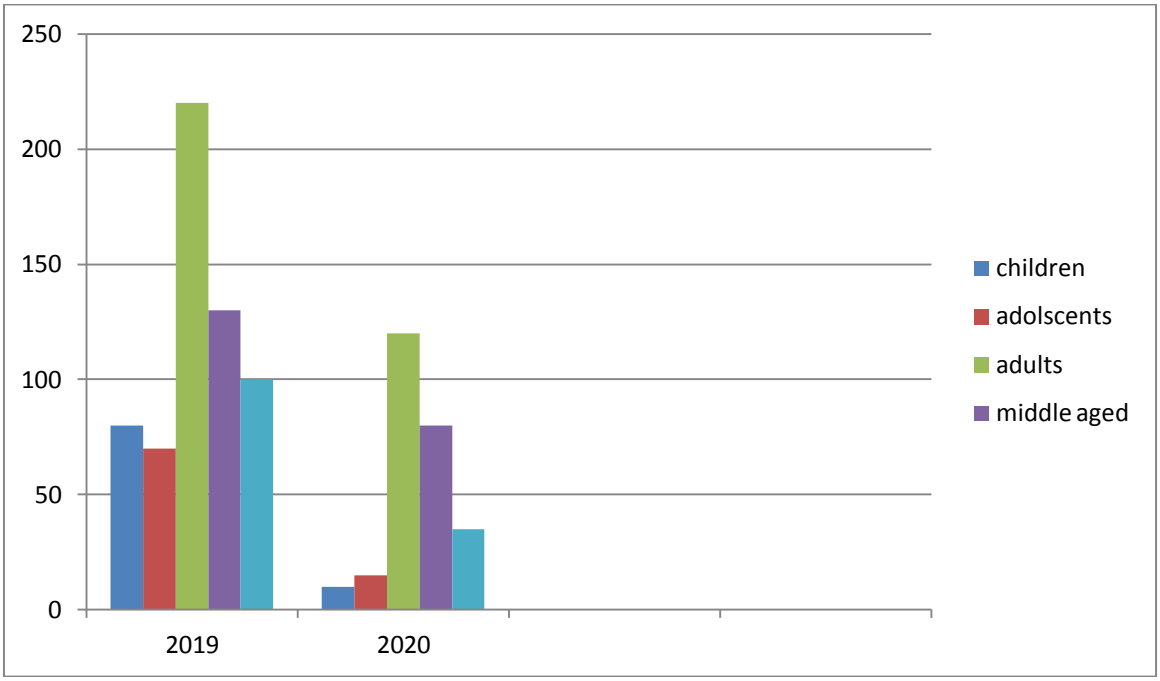


Figure 1a: showing eye injuries categorized by age.

Figure 1b: showing eye injuries categorized by sex.

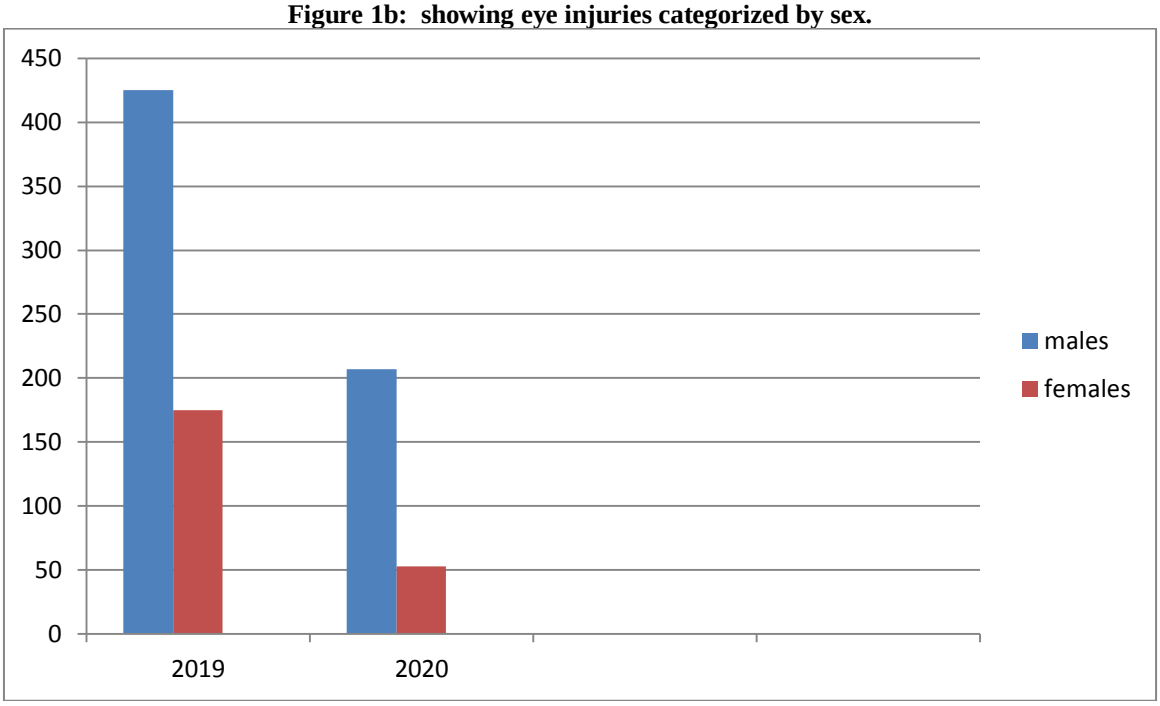


Figure 1c: showing eye injuries categorized by mechanism

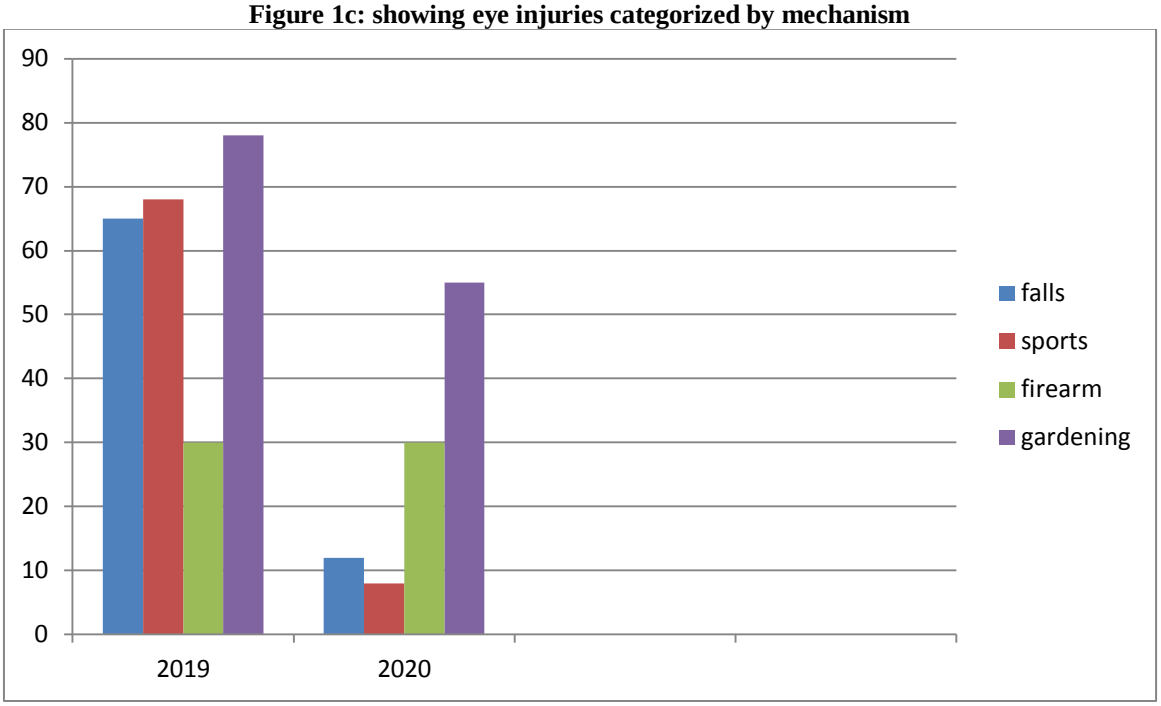
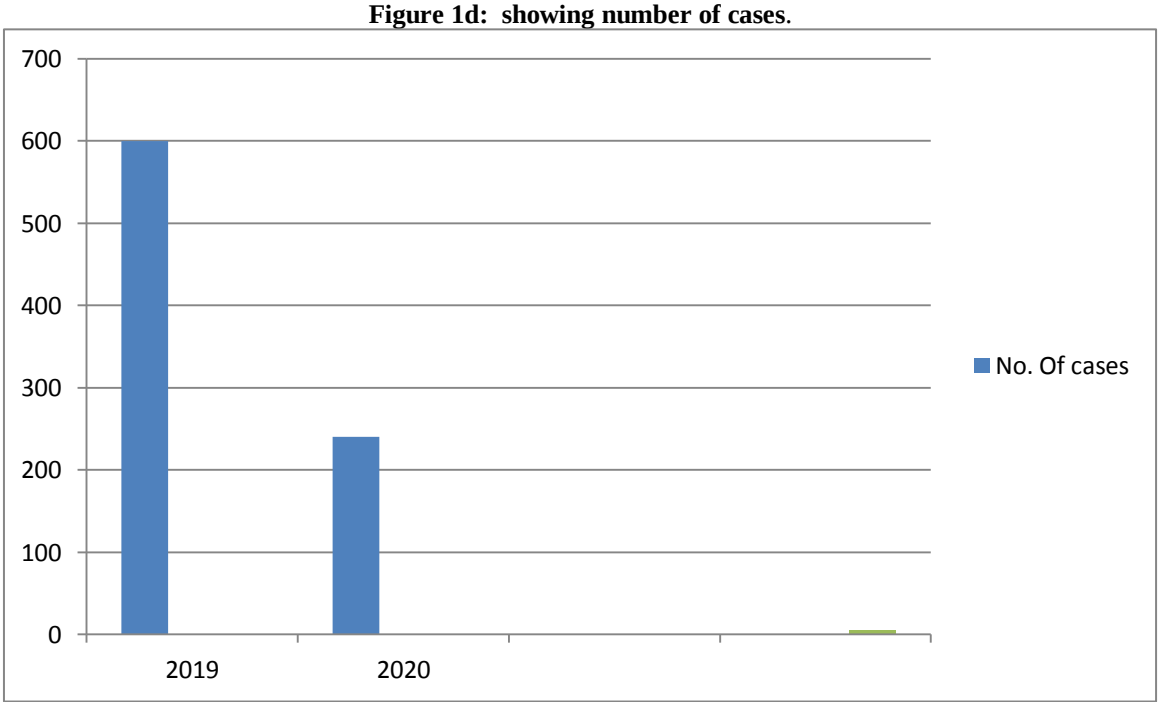


Figure 1d: showing number of cases.



IV. Discussion

The adopted measures taken to deal with the COVID-19 global pandemic have led to a profound change in our daily habits. Adopting restrictive measures prevented citizens from leaving their homes, except for proven health reasons and for carrying out useful to the community functions. This made our streets free of traffic, our sports facilities unused and public parks closed. Therefore, we wanted to verify the impact that these restrictions have had on the ocular trauma.We, therefore, compared the data relating to ocular injuries, that occurred in March-April 2020 (COVID period) with those of the same period, but of the year before (no COVID period).

The reduction in injuries (56.7%) in our Trauma Center during the pandemic period, is believed due to the following causes.

1) The restrictions imposed to stem the virus spread have reduced the circumstances that usually predispose to trauma: traffic accidents, sports injuries, accidental falls on the road, direct frontal blow.
2) The fear of a possible infection in the hospital discouraged those who underwent mild trauma from going to our emergency room.
3) The fear of incurring fines for violating government restrictions has further discouraged patients with mild trauma.
4) A lot of elderly patients have been isolated, and they could not count on family assistance for transportation to the hospital. Therefore, even on this occasion, patients with mild trauma hesitated to go to the Trauma Center.
5) The decreases of sport injuries and of injuries in children during school closure seem to support this hypothesis.

However, the drop of patients seeking emergency care affected all injuries, including serious ones potentially associated with vision loss. We believe that some patients may intentionally avoid urgent care rather than risking coronavirus exposure at hospitals. Anecdotal reports suggest that this is also happening for life-threatening medical emergencies such as myocardial infarction and stroke[2,1].

There was not that much decrease in injuries due to gardening/injuries with plants injuries owing to the agriculture being the main occupation of population, farming in rural areas continued to good extent as it was the time of start of agriculture season. Similarly, no great decrease in firearm injuries due to turmoil in valley.

V. Conclusion

We concluded that due to restrictions, there was dramatic decrease in number of ocular injuries. However injuries due to gardening and firearm had no such impact.

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Ejaz Akbar Wani, et. al. "The Impact of Covid 19 on Ocular trauma." *IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)*, 19(12), 2020, pp. 16-20.