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Traumatic brain injury during covid lockdown and relaxation of lockdown comparative study

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ABSTRACT

Road traffic accidents are the common cause of traumatic brain injury in civilian population covid lockdown had decreased head injury cases treated in a tertiary care centre because of decreased traffic materials and methods traumatic head injury patients admitted in madras medical college during covid lock down is compared with patients admitted after relaxation of lockdown by retrospective analysis.

Keywords: *Covid Lockdown, Head Injury, Madras Medical College, Road Traffic Accident, Traumatic Brain Injury Etc*

1. AIM

To compare and analyze patients with traumatic brain injury admitted to a tertiary care center during the lock down pandemic and during the relaxation of the lockdown period.

2. METHODOLOGY

All patients diagnosed with traumatic brain injury in Madras Medical College, Chennai, Tamil Nadu, India during April 2020 and January 2021. Inclusion Criteria were all ages and genders were included in the study. It is a retrospective observational study done to compare the incidence of traumatic brain injury pre and post lock down.

3. RESULTS

In this study the parameters taken into consideration are the age of the patient, gender, number cases admitted to the hospital during the lockdown and after relaxation of the lockdown and the GCS of the patients admitted initially.

There were a total of 78 cases admitted with traumatic brain injury during the month of April 2020 to our institute as compared to 289 cases that were admitted during December 2020 which is about 3.7 fold more than that of the cases admitted during the lockdown. In the lockdown group out of the total 78 cases admitted,63 cases i.e. 80.7% were male patients and 15 cases i.e. 19.3 % were female patients. The average age of the patients admitted was 42.56 years. The GCS of these patients was grouped under 3 categories mainly the conscious with GCS of 13 to 15, semi-conscious GCS of 9 to 12 and the unconscious patients with a GCS of $\leq$8 which were 39, 14 & 25 cases respectively.

In the relaxation of lockdown group out of the total 289 cases admitted, 228 cases i.e.78.9% were male patients, 59 cases i.e. 20.4% were female cases and 2 cases i.e. 0.7 % were transgender patients. The average age of the patients admitted was 40.25 years. The GCS of these patients was grouped under 3 categories mainly the conscious with GCS of 13 to 15, semi-conscious GCS of 9 to 12 and the unconscious patients with a GCS of $\leq$8 which were 134, 76 & 79 cases respectively.

Table 1: Demographic Data

	During Lockdown (April 2020)	After Relaxation of Lock down (December 2020)
Total Number of Cases	78 cases	289 cases
Average Age of Admitted patients	42.56 years	40.25 years

Table 2: Gender Distribution

Gender	During Lockdown (April 2020)	After Relaxation of Lock down (December 2020)
Percentage of Male Patients	80.7%	78.9%
Percentage of Female Patients	19.3%	20.4%
Percentage of Transgender	0	0.7%

Table 3: Diagnosis

Diagnosis	During Lockdown (April 2020)		After Relaxation of Lock down (December 2020)	
SDH - Sub dural hemorrhage	20	25.6%	70	24.2%
SAH - Sub arachnoid hemorrhage	6	7.7%	12	4.2%
ICH - Intra cranial hemorrhage	2	2.6%	8	2.8%
EDH - Extra dural hemorrhage	6	7.7%	2	0.7%
DAI - Diffuse axonal injury/ Brainstem Contusion	6	7.7%	53	18.3%
Skull Fracture	21	26.9%	108	37.4%
Pneumocephalus	1	1.3%	1	0.3%
Spine Injury	1	1.3%	21	7.3%
GC Bleed - Ganglio capsular bleed	1	1.3%	3	1%
IHB - Inter hemispheris bleed	1	1.3%	3	1%
S/P - Status post decompressivecraniectomy	10	12.8%	6	2.1%
IVH - Intraventricular hemorrhage	2	2.6%	2	0.7%
Concussion - Normal CT Brain	1	1.3%	0	0%

Table 4: Glasgow coma scale distribution at admission

GCS	During Lockdown (April 2020)	After Relaxation of Lock down (December 2020)
Percentage of GCS of 13 – 15	50%	46.3%
Percentage of GCS of 12 – 9	17.9%	26.3%
Percentage of GCS $\leq$ 8	32.1%	27.4%

4. DISCUSSION

The novel human coronavirus disease COVID-19 has become the fifth documentedpandemic since the 1918 flu pandemic. COVID-19 was first reported in Wuhan, China towards the end to 2019 andsubsequently spread worldwide.[1]The human coronaviruses usually cause mild upper respiratorydiseases. However, in the past two decades, two coronavirusestransmitted from animals[12], SARS-CoV and MERS-CoV, havecaused severe pneumonia and death in humans.[2] In addition,since late December 2019, the COVID-19 pandemic has spreadglobally and consequently resulted in at least 772,296 deaths worldwide as of August 18, 2020.[3]

On 23 March 2020, The Government of India ordered a nationwide lockdown for 21 days, limiting movement of the entire 138 Crore population of India as a preventive measure against the COVID-19 pandemic in India. It was ordered after a 14-hour voluntary public curfew on 22 March, followed by enforcement of a series of regulations in the country's COVID-19 affected regions.[4]The lockdown was placed when the number of confirmed positive coronavirus cases in India was approximately 500.As the end of the first lockdown period approached, state governments and other advisory committees recommended extending the lockdown. On 14 April, The Government of Indiaextended the nationwide lockdown until 3 May.[5]

So in this article we are comparing the incidence of traumatic brain injury cases that have been reported to our tertiary care center during this intensive lockdown phase during the month of April 2020 in comparison with the relaxation of this lockdown in December 2020.

It is observed that there is a 3.7 fold increase in the number cases[6] admitted after the relaxation of the lockdown. The mean age of the patients in both the groups is almost similar.[7,8] The youngest being 5 years and the eldest being 77 years in the lockdown period, while the youngest patient is 1.5 years and eldest is 85 years in the relaxation of lockdown group. The most common diagnosis made at the time of admission in both the groups are SDH[9,10] (Sub Dural Hemorrhage) which was about 25.6% during Lockdown and 24.2% after lockdown). The other diagnosis in order of their occurrences are Skull fractures, Diffuse Axonal Injuries, Intracranial Bleed, Sub Arachnoid Hemorrhage, Inter Hemisphere Bleed, Ganglio-capsular bleed, Intraventricular Haemorrhage, Pneumocephalus and spinal injuries. Many injuries were associated with multiple bleeding[11]. This shows that traumatic brain injury can occur at any age and the best preventive measure to take is to stay safe.

5. CONCLUSION

We conclude by saying that no age or gender is spared when it comes to traumatic brain injury. A nationwide lockdown has reduced the incidence of TBI by 3 fold in our center. This is mostly a preventive cause of injury and hence in the best interest of the nation it is requested that people take utmost care so that they prevent themselves and others form getting injured and can prevent a ghastly misery.

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