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Rise in the incidence of traumatic brain injuries due to assault in Covid-19 era: Analysis at a Tertiary Care Centre in East Godavari,Andhra Pradesh

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ABSTRACT: **Background**:The recent SARS-CoV-2 pandemic has had its impact on medical,personal,social and professional fronts.There has been a rise in cases of head injuries due to assault in the Covid era as compared to pre-Covid times.

Objective:To analyse theincidence of traumatic brain injuries due to assault at a tertiary care government setup in the Covid era and compare it with the data in the pre-Covid times.

Methods: We reviewed the incidence of TBI due to assault between 1st April 2020 and 1st September 2020 admitted from Casualty in the Department of Neurosurgery,GovernmentGeneralHospital, Kakinada,Andhra Pradesh and compared this with the incidence in last 5 months between November 2019 to April 2020.After a thorough clinical evaluation and radiological assessment in the form of CT scans of the brain and whole spine,the demographic data was recorded for each case and compiled**.**

Results: There was a 150% increase in cases of head injuries due to assault in the Covid era with a higher percentage of females in Covid(70.6%) as compared to pre-Covid times(26.7%).Patients affected in the assault cases in the Covid era wereolder (25-45 years) than the pre-Covid (below25 years).Domestic violence emerged as the most common cause during the pandemic.

Conclusion: There has been a definite increase in the incidence of assault cases leading to Traumatic Brain Injuries in the Covid era and the ongoing crisis and social distancing protocols to control it may have had an impact on the psychosocial health of the people due to financial losses,socio-economic deprivation,familyarguments,etc.

KEYWORDS: Traumatic Brain Injuries; assault; Covid-19 ; domestic violence; pandemic.

I. INTRODUCTION

The ongoing coronavirus disease of 2019 (COVID-19) pandemic has affected 213 countries and territories across the world with a total of 33,116,863 confirmed cases and there have been 999,540 COVID-19 related deaths.[1]Looking at the increasing number of cases in spite of the preventive measures, a nation-wide lockdown was implemented on March 25, 2020.[2]During the "lockdown," the government advised the public to stay home as much as possible and leave home only when absolutely necessary. International travel was banned and domestic travel was majorly curtailed. Companies and offices were advised to allow their employees to work from home as much as possible**.**Practically, more than 135 million Indians were "locked up" inside their homes for 10 weeks, at the end of which "lockdown" was eased looking at the need to sustain the economy and resume "normalcy."[4]

The pandemic has been posing tough challenges not only in the field of patient care but has also affected the people on personal,social and professional fronts.There has been a change in the epidemiology of head injuries in the Covid era with assault emerging as one of the key modes of injury.

II. METHODOLOGY

This was a prospective observational study in which we reviewed the incidence of Traumatic Brain Injuries due to assault between 1st April 2020 and 1st September 2020 admitted from Casualty in the Department of Neurosurgery,GovernmentGeneralHospital,Kakinada,Andhra Pradesh and compared this with the incidence in last 5 months.

All the patients received a thorough clinical evaluation and radiological assessment in the form of CT scans of the brain and whole spine.Demographic data in form socio-economic indexing (Modified Kuppuswamy Scale) was recorded for each case.

Inclusion Criteria: All patients of head injury admitted in the department from casualty.

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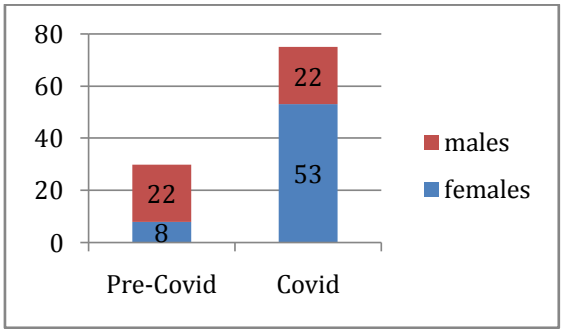
Exclusion Criteria: Outside operated cases of head injuries who were referred to and admitted in our hospital were not considered in the study.

III. RESULTS

75 patients(43 males;32 females) with suspected TBI due to assault were seen during this period of 5 months(April 2020 to Sepetember 2020)considered as Covid era in comparison with a mere 30 cases(22 males;8 females) recorded in the previous 5 months(November 2019 to April 2020)considered as pre-Covid era. This equates to a 150% increase in cases of TBI due to assault as seen in **Figure 1**.

Figure 1: Gender Distribution



The most common age group encountered in the assault cases in the Covid era was 25-45 years whereas it was below-25 years age group in pre-Covid era as shown in **Table 1**.

Table 1:Agewise distribution

Period	<25 yrs	25-45 yrs	>45 yrs
Pre-Covid Era	56.7%	26.7%	16.6%
Covid Era	38.6%	46.7%	14.7%

Table 2 shows the distribution of the socio-economic status as per Modified Kuppuswamy Scale.

Table 2:Distribution of Socio-economic status

	Lower	Upper lower	Lower middle
Pre-Covid Era	50%	40%	10%
Covid Era	73.3%	18.7%	8%

The most common place of assault in pre-Covid era was community/workplace whereas in Covid era, domestic violence was the most common.

Table 3: Place of Violence

Period	Community/ Workplace	Domestic
Pre-Covid era	80%	20%
Covid era	42.7%	57.3%

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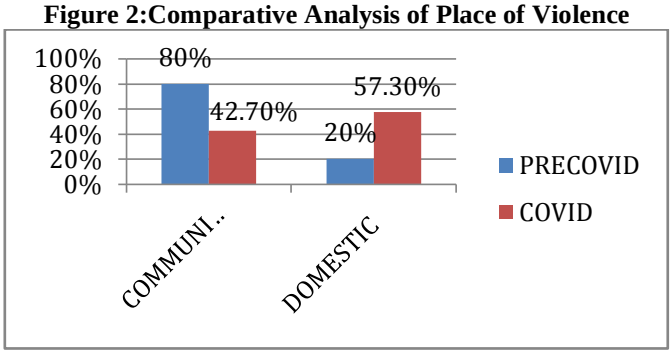
Figure 2:Comparative Analysis of Place of Violence



The most common weapon of assault was iron rod(18 out of 30 cases) in Pre-covid times whereas coconut in the Covid era(45 out of 75 cases),probably because it is a readily available item at homes,being in a coastal area.

Most of the assault cases of traumatic brain injuries were mild in severity both in Pre-Covid(76%) and Covid era(80%).**Table 4** shows the distribution of cases as per severity of Traumatic Brain Injury.

Table 4: Severity of Traumatic Brain Injuries

Period	Mild (GCS 13-15)	Moderate (GCS 9-12)	Severe (GCS ≤8)
Pre-Covid era	63.3%	33.3%	3.3%
Covid era	80%	14.7%	5.3%

Table 5 shows the distribution as per the CT diagnosis.

Table 5: CT Diagnosis

Period	SDH	Contusion	EDH	Traumatic SAH	Skull fractures
Pre-Covid era	64%	40%	36%	32%	48%
Covid era	47%	36%	31%	17%	60%

IV.DISCUSSION

The increase in incidence seen at our institution reflects a rise in Traumatic Brain Injury due to assault in the Covidera.A vast majority of these cases represent increase in trend of domestic violence and a relative decline in assault due to arguments in community gatherings or at workplace,probably as a result of enforcement of strict lockdowns and social distancing measures.[3]These figures are likely to be under-represented due to public avoidance of hospitals at this time.

The ongoing crisis and social distancing protocols to control it may have had an impact on thepsychosocial health of the people due to financial losses,socio-economic deprivation, familyarguments, etc.which may be exacerbated as a result of the stresses imposed by quarantine measures.

The complex links between abuse, mental health, substance misuse, and socioeconomic circumstances are often interdependent and this is an issue which may turn into a ‘silent second pandemic’ if not addressed properly by the medical community.[5]

V.CONCLUSION

There has definitely been an increase in the incidence of traumatic brain injuries due to assault in the Covid period at our centre in East Goadavari.

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