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ABSTRACT

Objective: Covid19 pandemic challenged the global healthcare system and both developed and developing countries responded with their might to fight this global pandemic. Road traffic accidents are a major cause of morbidity and mortality in India and we studied the impact of lockdown on neurosurgery trauma patients in a tertiary care centre in India.

Methods: Indian government announced complete lockdown on 25th march 2020 and India remained in complete lockdown till 31st May 2020. We included the patients admitted from 1st January 2020 to 24th March 2020 in pre lockdown period and 25th march to In this cross-sectional study we divided the patients into two groups of pre lockdown and lockdown period and incidence of neurosurgery trauma patients was assessed for Road Traffic Accident, assault, hit by animal and fall from height.

Result: In our study 491 patients were admitted in pre lockdown and 369 patients were admitted in lockdown period. Road traffic accident patients were more in pre lockdown 39.5% (n=194) as compared to lockdown period 31.2% (n=115). However, cases of assaults were more in the lockdown period (14.6%, n=54) as compared to pre lockdown (3.9%, n=19). The death rate in neurosurgery trauma patients reduced significantly in lockdown (7.3%, n=27) as compared to pre lockdown (21.8%, n=107).

Conclusion: The COVID19 pandemic induced lockdown resulted in a decrease in motor vehicle movements which further decreased the incidence of RTA and related trauma however incidence of assault-related trauma and cases increased significantly in this period. The overall outcome of such patients improved probably due to better utilization of available health care facilities.

INTRODUCTION

The first reports of Covid19 disease started to appear from various parts of China and it gradually spread in European nations first and then USA while in India initial cases were reported in January 2020.1 Indian government on first announced a public participation lockdown and on 24th March, 2020 ordered an unprecedented nationwide lockdown for 21 days and subsequently extended till 31st May 2020.2 This absolutely indispensable and globally appreciated rigorous lockdown froze the world's largest democracy. This lockdown made everything to stand still in a country of second largest population and

Keywords
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caused significant decrease in motor vehicular activities.³ This resulted in subsequent decrease in the cases of neurosurgery trauma patients. Although India has only 1% of the motor vehicles of the world yet nearly 37000 persons died in 2019.⁴ Impact of lockdown on cases of road side accidents and assault cases, their prevalence and the effective healthcare provided to the victims is not assessed properly in world medical literature. We tried to study the impact of lockdown on number of cases and efficacy of treatment provided to the patients admitted in India in our study.

AIMS AND OBJECTIVES

To study the impact of lockdown on trauma cases in a hospital in India.

To study the quality of health care in terms of operations and survival of the trauma patients during Covid19 pandemic and difference in level of care during and without lockdown.

MATERIALS AND METHODS

This was a retrospective cross-sectional study done in our hospital which is the biggest tertiary referral centre of India. All patients who presented with history of trauma during the lockdown between 26th march 2020 to 31st may 2020 were compared with a comparative period of 67 days between 19th January 2020 to 25th march 2020. We included all the patients who presented to our trauma centre. Our study was aimed to study the patients with a history of road traffic accidents (RTA), fall from height, domestic accidental injuries, injuries, sports-related injuries, assault injures, or injuries caused by animals. We collected data on trauma patients from our hospital's electronic database. The following data were collected on a standard data abstraction sheet: baseline characteristics, mode of injury, type of RTA, treatment given and hospital outcome.

STATISTICAL ANALYSIS

We analyzed the data by using a statistical package for social sciences for Windows (SPSS Inc. released 2007, version 23.0. Armonk, NY, USA). Dichotomous variables were compared by using the chi-square test. The factors associated with the profile of trauma patients during these two study periods were determined by bivariate logistic regression analysis and their 95% confidence intervals (CI) calculated. A two-sided p-value of less than 0.05 was considered statistically significant.

OBSERVATIONS AND RESULTS

In this study total 860 patients were enrolled based on inclusion and exclusion criteria. We found in this study that total 491 patients were admitted in pre lockdown and 369 in lockdown. These patients were classified into patients of RTA, assault, fall from height and others. The total number of patient admitted in lockdown was less as compared to pre lockdown period in our trauma centre. (Table 1)

Table 1. Total patients admitted in pre lockdown and lockdown period (April 2021)

Percent	Total number of patients admitted	Percent
Pre-lockdown	491	57.1
Lockdown	369	42.9
Total	860	100.0

This study suggested that more young patients were reported in our causality trauma centre indicating a more burden of accidental injuries during pre lockdown period as compared to lockdown period. In this study admission of male patients was more during pre lockdown period (n= 373, 76% in pre lockdown v/s n=276, 74.3% in lockdown) as compared to lockdown which suggested that road traffic accidental trauma in males during pre lockdown period. However admission of female patients was slightly more during lockdown period (n=93, 25.2%) as compared to pre lockdown (n=118, 24%). This suggested a rising trend of injuries amongst females during lockdown which we further investigated in our study. We found that more females were subjected to assault (n=54, 14.6% during lockdown v/s n=19, 3.9% in pre lockdown) during pre lockdown period and most cases were of domestic violence. Also in this study there was a slight increase in admission of children during lockdown period (n=26, 7%) as compared to pre lockdown period (n=26, 5.3%). (Table2)

Table 2. Mode of injury in patients admitted in lockdown and pre lockdown period

			Time period		Total
			Pre lockdown	Lockdown	
Mode of injury	Fall	Count	66	50	116
		% within Lockdown	13.4%	13.6%	13.5%
	Hit	Count	3	2	5

		% within Lockdown	0.6%	0.5%	0.6%
RTA		Count	194	115	309
		% within Lockdown	39.5%	31.2%	35.9%
Assault		Count	19	54	73
		% within Lockdown	3.9%	14.6%	8.5%
Others		Count	209	148	357
		% within Lockdown	42.6%	40.1%	41.5%
Total		Count	491	369	860
		% within Lockdown	100.0%	100.0%	100.0%

In this study more patients were admitted with history of road traffic accidents (n=194, 39.5%) during pre lockdown period as compared to lockdown (n=115, 31.2%) suggesting a statistically significant fall in incidence of road traffic accidents in lockdown (p value <.05). However the admissions of patients with history of assault was more in lockdown period (n=54, 14.6%) as compared pre lockdown (n=19, 3.9%). There was a statistically significant increase in number of cases of assault in lockdown period reflected in our study. (Table3)

Table 3. Outcome of patients in lockdown versus pre lockdown period

			Lockdown		Total
			Pre	Post	
Outcome	Left against medical advise	Count	72	40	112
		% within Lockdown	14.7%	10.8%	13.0%
	Deaths	Count	107	27	134
		% within Lockdown	21.8%	7.3%	15.6%
	Abscond	Count	7	3	10
		% within Lockdown	1.4%	0.8%	1.2%
	Transferred to other departments	Count	40	33	73
		% within Lockdown	8.1%	8.9%	8.5%
	Discharges	Count	265	266	531
		% within Lockdown	54.0%	72.1%	61.7%
Total	Count	491	369	860	
	% within Lockdown	100.0%	100.0%	100.0%	

In this study the outcome of patients was improved in lockdown period with deaths due to trauma was more in pre lockdown period (n=107, 21.8%) as

compared to lockdown period (n=27, 7.3%). Similarly discharges were more in lockdown period (n= 266, 72.1%) as compared to pre lockdown period (n=265, 54%).

DISCUSSION

We worked on a hypothesis that lockdown will halt all the motor vehicular activities in the country and will cause significant decrease in cases of road traffic accidents and associated injuries.⁵ This was also projected in IJCMR by Nandkishore M Harne et al in 2020.⁶ As according to our hypothesis, this study also showed that patients admitted due to road traffic accidents were decreased by 8% during lockdown as compared to pre lockdown. This fall in number of road traffic cases was due to reduced vehicle activities and also due to reduced demand and supply ratio of essential commodities during lockdown period. This reduced economic activities and fall in motor vehicle accidents was also observed in other countries like UK.⁷

During the testing times of Covid19 disease this fall in cases of accidents was a breather in terms of burden on already stretched healthcare system. We found a slight increase in pediatric populations admitted with history of trauma in our hospital between the two periods during lockdown period (n=26, 7%) as compared to pre lockdown period (n=26, 5.3%) but not significant statistically. More likely the cause of this finding was children being more at home and hence more prone to injuries and domestic violence in lockdown period.^{8,9} In this study we found increased incidence of assault and accidental injuries amongst females during lockdown period in our study which was suggesting of increased cases of domestic violence and related assault in this section of society.¹⁰ Similar data was found in the studies published in Lancet journal suggesting increased incidence of rage and anger during the period of lockdown mainly due to economical constraints and psychological breakdowns. Increased incidence of assault has been reported in other parts of world too during lockdown.¹¹ The pan-global lockdown has aptly been described as "the world's largest psychological experiment".¹² A review of multiple studies done on the effect of quarantine published by The Lancet shows that quarantine in the past has been associated with increased fear and anger among other emotions that may have perpetrated

assaults.¹³ In this study we found a statistically significant difference in outcome of patients admitted with history of trauma. This study suggested that lesser number of admissions during lockdown successfully helped to provide better healthcare to these patients.

CONCLUSION

This study concluded that during lockdown the number of trauma cases was decreased as compared to pre lockdown period. The cases of road traffic accidents were decreased in our hospital but the incidence of assault was increased during lockdown period. Incidence of assault in case of females increased and also there was increase in injuries in pediatrics age group during lockdown period.

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