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Effect of Covid-19 lockdown in trauma cases of Rural India

Antariksh Waghmare*, Sandeep Shrivastava, Swapnil Date

Department of Orthopaedics, Datta Meghe Institute of Medical Sciences, Wardha, Maharashtra, India

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ABSTRACT

Covid-19 has shocked the world and forced almost all the countries to a dumbfounded state. This virus has minimised the movement of humans, showing changes like never seen before. Positive effects have already been seen in nature and wildlife in the form of pollution control. The adverse effects of lockdown are seen as economic collapse. In this study, all the trauma patients coming to Acharya Vinobha Bhave Rural Hospital, Wardha were included irrespective of their age and mode of trauma. Period of two weeks before and two weeks after the initiation of lockdown in India from 23^{rd} march 2020 have been taken into consideration. Both the outpatient and emergency patients were included in our study. We have observed a significant fall on overall trauma cases as expected due to the lockdown. There was a fall in the total number of cases by around three times. Our study showed that the demography of geriatric trauma, which remained almost the same and nearly all of them were old age females. Low-velocity trauma has shown an increase after lockdown from 42% to 64%, while the total numbers of cases are still less as compared to before the lockdown. High-velocity trauma cases have been reduced from 52% to 31% after lockdown, which indicates less road traffic-related injuries. During the lockdown, however, we have seen a significant fall in head neck and face trauma when compared to the upper limb and lower limb trauma.

*Corresponding Author

Name: Antariksh Waghmare
Phone:
Email: antariksh373@gmail.com

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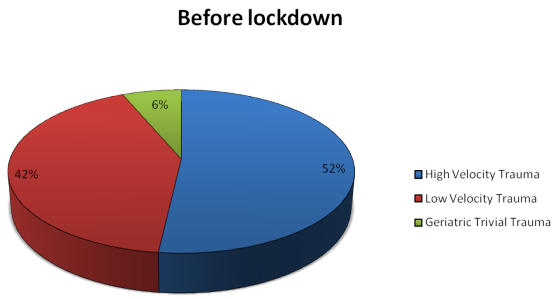
INTRODUCTION

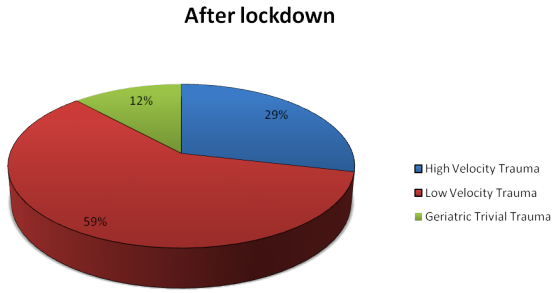
Covid-19 has shocked our world and forced almost all of the countries into complete lockdown. This lockdown has lead to minimising the movement of human activity, showing changes like never seen before. Positive effects have already been seen in nature and wildlife in the form of marked pollution control while adverse effects of lockdown are seen as economic collapse. While we can debate over the advantages and disadvantages of the lockdown, we cannot ignore the undeniable fact that it has changed at least some part of the world around us. We want to show through this study, the reduced number of trauma cases during the lockdown implemented in rural India and how we can utilise this data to improve the future numbers.

India is a developing country, increasing growth rate have brought increased in the infrastructure of roads and the number of vehicles on the streets, and this made us amongst one of the largest road networks in the world. Studies from different regions of the country have shown most of the victims aged from 20 to 40 years (Jha *et al.*, 2003; Mohan, 2004; Sathiyasekaran, 1991). Road traffic accidents were found to be the most common cause for injuries in young population, amongst which two-wheelers

were involved most commonly (Uthkarsh *et al.*, 2012). Multiple fractures were found to be the most commonly sustained injury in motorcycle collisions . Accidents occurring in this age group are a double loss to our country. Firstly payments for the treatments of these victims and secondly failure of these men results in productive loss (Tiwari and Ganveer, 2005). Preventing road traffic accidents and injuries is a crucial area which requires the attention of policy makers (Jagnoor, 2006).



Graph 1: Distribution of various modes of injury before lockdown



Graph 2: Distribution of various modes of injury after lockdown

MATERIALS AND METHODS

All of the trauma patients coming to Acharya Vinobha Bhave Rural Hospital, Wardha were included irrespective of their age and mode of trauma. Period of two weeks before and two weeks after the initiation of lockdown in India from 23^{rd} march 2020 have been taken into consideration. Subjects have been divided into groups according to the mode of trauma: -High velocity trauma, Geriatric trivial trauma and low-velocity trauma. Both the outpatient and emergency numbers were included in our study.

High-velocity trauma mostly included road traffic accident cases. In contrast, low-velocity trauma included injuries such as fall from a height, fall while walking and most commonly farm work-related accidents. Geriatric trauma added individuals whose biological age was found to be >60 years and mode of trauma were identified as a minor injury; all of them had the fractured neck of femur (Intracapsular and extracapsular).

RESULTS AND DISCUSSION

We have observed a significant fall in overall trauma cases as expected due to the lockdown. There was a fall in the total number of cases by around three times. This indicates the success of authorities implementing strict lockdown measures.

Our study showed that the demography of geriatric trauma remained almost the same, and nearly all of them were aged women. This exposure indicates that 5-6 % cases of our rural society are geriatric injuries which can be prevented by anti-osteoporotic treatment and lifestyle modification. Low-velocity trauma has shown an increase after lockdown from 42% to 64%, while the total numbers of cases are still less as compared to before the lockdown (as shown in Table 1). High-velocity trauma cases have been reduced from 52% to 31% after lockdown, which indicates less road traffic-related injuries (as shown inGraphs 1 and 2).

Male to female ratio remained almost the same pre and post lockdown (As shown in Table 2).

When we organised the trauma according to the region of the body part involved, it occurred that lower limb, upper limb and head neck face trauma was almost equally distributed before the lockdown. After lockdown, however, we have seen a significant fall in head neck and face trauma when compared to the upper limb and lower limb trauma. Percentage of thoracic and abdominal trauma remained the same pre and post lockdown (as shown in Table 3).

No such study could be found since never before such drastic measures had to be taken by authorities around the world. This initiative found to be an opportunity to find out the exact demographic data since most of the population is following the protocols provided by the government.

Our study showed trauma ratio between male to female ratio of roughly 3:1, which stayed the same before and after the lockdown, which is similar to other research done in a tertiary centre in India (Manwatkar *et al.*, 2019). This presentation might be pointing towards the ratio of male to female, which is not related to high or low-velocity trauma irrespective of lockdown. Our study also

Table 1: Distribution of various modes of injury

	Before lockdown	After Lockdown
High Velocity Trauma	57 (52%)	12 (31%)
Low Velocity Trauma	46 (42%)	25 (64%)
Geriatric Trivial Trauma	7 (6%)	5 (5%)
Total	110	39

Table 2: Distribution of gender of the patients

	Before lockdown	After Lockdown
Males	79 (72%)	29 (74%)
Females	31 (28%)	10 (26%)
Total	110	39

Table 3: Distribution of patients according to the region of body part involved

	Lower limb trauma	Upper limb trauma	Thorax and abdomen trauma	Head, neck and face trauma	Total
Before Lock-down	35 (32%)	33 (30%)	6 (5%)	36 (33%)	110
After Lock-down	14 (36%)	13 (33%)	4 (10%)	8 (21%)	39

indicates the decreasing percentage of head neck and facial trauma after lockdown, which might again point towards the reduction in several high-velocity road traffic injuries. However, upper limb and lower injuries percentage remained the same pre and post lockdown indicating towards more involvement of low-velocity injuries which stays a significant part of rural India's farm and manual labour working population. Injuries, when divided according to the region of the body head-neck trauma, was found to be involved with the highest percentage, which was similar to the studies reported by other centres around India (Manwatkar *et al.*, 2019; Rastogi *et al.*, 2014).

We also found our institute and Government of India has already started 5-6 % of geriatric trauma individuals which can be prevented and the measures to avoid these injuries such as awareness programs and medical treatment.

Low-velocity trauma cases are something which is challenging to address, especially in the rural population which survive mostly on daily labour and farm-related labour work. We think safety measures in small scale industries and better farming equipment can reduce this number.

High-velocity trauma which includes mostly road traffic accidents, have reduced by almost five times during the lockdown period. This expression is a significant percentage of the rural population or even the overall population in India, contributing to the total number of trauma cases. This is a substantial cause of morbidity and mortality in Indian scenario adding to significant economic burden on our country (Gururaj, 2008). Authorities should take note of this serious issue, and meaningful measures are needed to reduce the number of high-velocity trauma.

CONCLUSIONS

Our study concludes that there is a significant reduction in the total number of trauma cases as well as high and low-velocity trauma cases during the lockdown period. However Total number of Geriatric (trivial) trauma cases remained the same. Also, during the lockdown, we have seen a major fall in head neck and face trauma when compared to the upper limb and lower limb trauma. So the measures like lockdown can be implemented to reduce road traffic accidents owing to significant economic burden on our country.

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Conflict of Interest

None.

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