Journal of Cardiovascular Disease Research

ISSN: 0975-3583,0976-2833 VOL13, ISSUE 05, 2022

ORTHOPAEDIC TRAUMA DURING COVID LOCKDOWN: A DESCRIPTIVE STUDY IN A TERTIARY CARE HOSPITAL

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Abstract

Introduction: Surge of covid 19 cases during second wave led to Government of Karnataka announcing lockdown from April 27 to July 04 2021. This led to change in volume and pattern of orthopaedic traumatic patients. This study aims to evaluate the impact of lockdown on orthopaedic trauma in a tertiary care teaching hospital and to compare it with the homologous period of 2019.

Materials & Methods: This is a descriptive study. Data regarding orthopaedic traumatic patients visiting Mandya Institute of Medical Sciences during second lockdown from 27 April 2021 to 4 July 2021 was compared and analysed with homologous period of 2019. Effect of lockdown on management of patients was studied.

Results: 58% reduction in trauma was noted. Male to female ratio was decreased during covid time 2.14 vs 2.38(non covid).Mean age was 50.2 years (non covid 45.2) and 57.3 % were more than 45 years(non covid 49.5%) . Hip, ankle/foot and wrist/ hand 59% were the common region of injury.Self fall 40% was the commonest mode of injury.Private vehicle was the commonest mode of transport(81%).Majority had delayed treatment of more than 1 week (51%).Private hospital was the commonest place of treatment (71%).

Conclusion: There was significant reduction in trauma cases during second covid lockdown. Females were commonly injured during covid time .Elderly were commonly injured during covid time. Hip, wrist/hand and ankle/foot were the common region of trauma. Self fall was

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most common mode of injury. private vehicle was the most common mode of transport . Most patients had delayed treatment. Private hospital was the common centre for orthopaedic care during lockdown.

Keywords: Covid Impact, Orthopaedic trauma, Covid trauma, Lockdown trauma

Introduction:

COVID-19 was declared an epidemic of serious concern and Government of India invoked the Epidemic Disease Act , 1987 . Strategies initiated to mitigate the spread of Covid 19 included closure of workplaces for nonessential services, closure of non-essential businesses and restricting social gathering. As a result all vehicular movement, industries, schools, construction work, , and national highways were restricted.1

Sporadic trauma cases continued to arrive at most emergency departments in small numbers, despite the restriction on mobility of people and vehicles.There is little data that is known and reported about patterns and volumes of injury during periods of community lockdowns in such pandemic situations, which is totally unprecedented in nature .2

Surge of coronavirus cases during second wave the government of Karnataka introduced lockdown from 27 April 2021 to 4 July 2021.Mandya institute of medical sciences teaching hospital is a tertiary level care hospital catering to mostly rural population of Mandya and neighbouring districts of Ramnagar, Tumkur , Mysore.
So in our study we would like to describe the pattern of orthopaedic traumatic patients in our hospital during second covid lockdown visiting MIMS , Mandya and analyse the same and also to study the effect of lockdown on orthopaedic traumatic patients.

Materials And Methods

Study was undertaken after taking approval from Institutional Ethics committee and Scientific committee .This is a descriptive study .

Objectives of the study

1)To describe the Pattern of orthopaedic trauma during COVID lockdown during covid 2nd wave to normal period

2) To analyse the determinants of the pattern of injuries during second covid lockdown

3) To study the effect of Covid lockdown on trauma management

Surge of coronavirus cases during second wave the government of Karnataka introduced lockdown from 27 April 2021 to 4 July 2021.Mandya institute of medical sciences teaching hospital(MIMS) is a tertiary level care hospital catering to mostly rural population of Mandya and neighbouring districts of Ramnagar, Tumkur , Mysore. MIMS was designated as covid hospital to accommodate increased covid cases and orthopaedic surgeries were stopped . Orthopaedic traumatic patients with fractures who require intervention were referred to higher centre from 27 April 2021 to 4 July 2021 .The record of these patients were retrived

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from Hospital register and records section . These data were compared with 27 April 2019 to 4 July 2019 as Year 2020 was affected by First covid lockdown . The data for the time period from 27 April 2019 to 4 July 2019 were retrived from records section , Hospital register and OT register and was compared. The total number of patients who were admitted during second covid lockdown was compard with the total number of patients during same period of 2019. Acute traumatic patients who had fracture who underwent admission who needed surgery were included.

The records were tabulated for demographic data. age and sex .Age is divided into 5 categories of <15 years , 16-30 yrs, 31-45 yrs, 46-60 yrs and > 60 yrs. Sex was divided into male and female . .The details regarding bone fractured ,mode of trauma and diagnosis were tabulated. Mode of trauma was divided into road traffic accident , self fall at home,fall outside home and other modes of trauma . Other mode of trauma included fall from height and assault.The mode of transport to reach hospital was noted and categorized into government sponsored ambulance , private vehicle and other mode of transport which included public transport/ bus and walking .

To know the effect of covid on management , patients were contacted and after taking consent details were collected regarding time between trauma and surgery ,healthcare facility where surgery was undertaken. Duration between trauma and surgery was noted and divided into <7 days , 8-30 days and > 30 days . The hospital where patient got operated were divided into government higher centre , private hospital, MIMS hospital after lockdown , or didn't get treated .If the patient didn't get operated it was taken as more than > 30 days for definitive treatment

Inclusion criteria

1.Orthopaedic traumatic patients who visited Mandya Institute of medical sciences from 27 April 2021 to 4 July 2021

2. Patients who had fracture requiring surgical intervention .

3. Patients who was treated at Mandya institute of medical sciences from 27 April 2019 to 4 July 2019.

Exclusion criteria

1.Patients whose records not found

2. Patients who didn't give consent for study

Analysis:

The collected data will be entered using Microsoft Excel software and analyzed using SPSS trial version.Continuous data were analyzed as mean ± standard deviation. Categorical data were reported as numbers and percentages .p value of less than 0.05 was considered significant.

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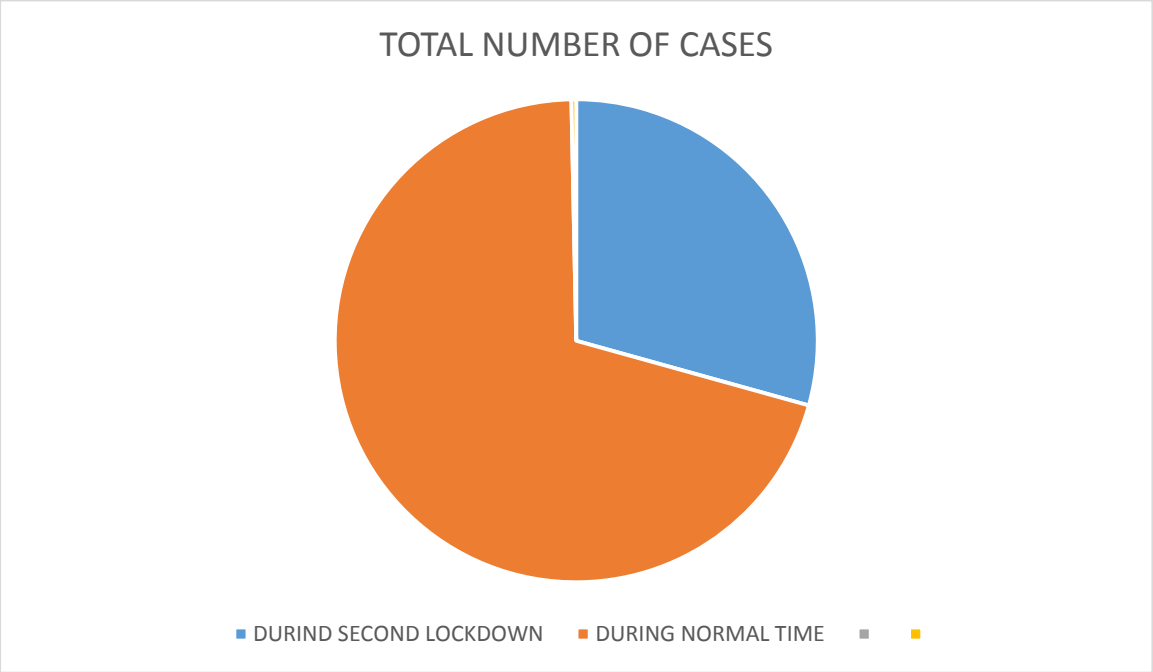
Results

There is 58 percent reduction in acute trauma cases during second lockdown when compared to normal times. (Table-1)

IMPACT OF CORONAVIRUS LOCKDOWN ON ORTHOPAEDIC TRAUMA (TABLE-1)

TOTAL NUMBER OF CASES DURING SECOND LOCKDOWN	TOTAL NUMBER OF CASES DURING NORMAL TIME
110	**264**



There was increased male to female ratio during non covid 2.38 when compared to during covid time 2.14 with P value of 0.033. (Table-2)

SEX RELATION TO TRAUMA (TABLE-2)

	COVID TIME	NON COVID TIME
MALE	**75**	**186**
FEMALE	**35**	**78**
MALE TO FEMALE RATIO	**2.14**	**2.38**

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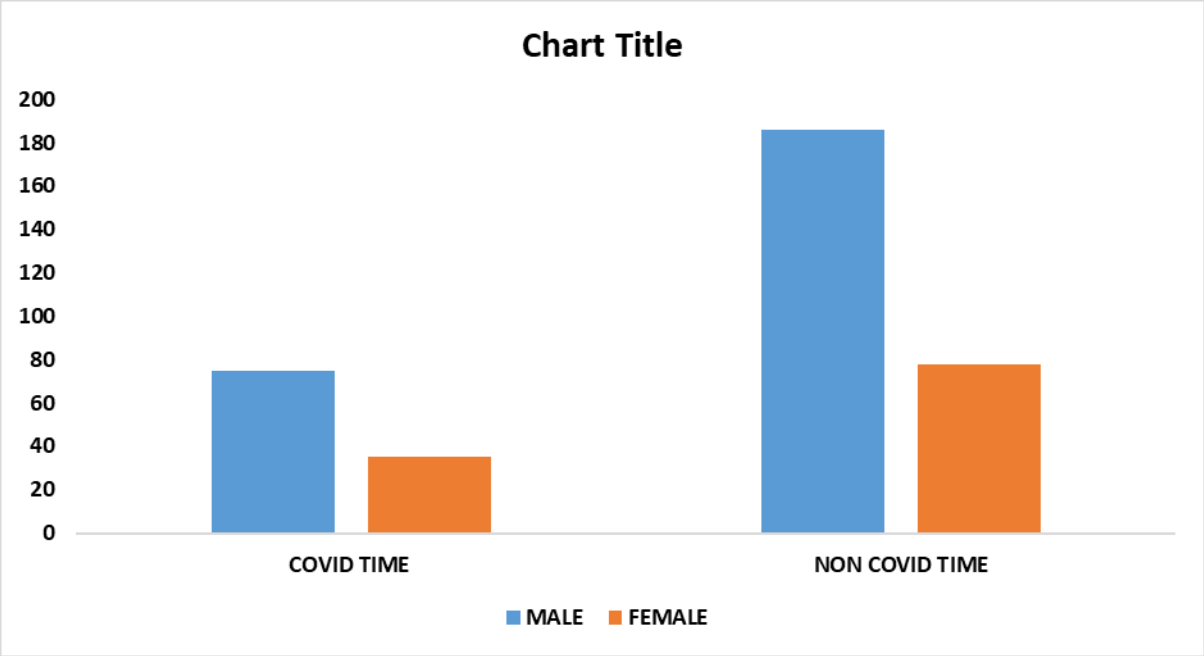

Mean age was 50.2 years, More trauma was found in more than 45 years of age group during covid time (57.3%) .

Mean age was 42.1 years . More trauma was found in younger age group (<45 years) during non covid time (51.5%). ((Table-3)

p-value was 0.30

AGE RELATION TO TRAUMA(TABLE-3)

AGE GROUP(IN YEARS)	COVID TIME (PERCENTAGE)	NON COVID TIME (PERCENTAGE)
<15	6 (5.5%)	27 (10.2%)
16-30	18 (16.3%)	51 (19.4%)
31-45	23 (20.9%)	62 (23.4%)
46-60	24 (21.8%)	54 (20.5%)
>60	39 (35.5%)	70 (26.5%)

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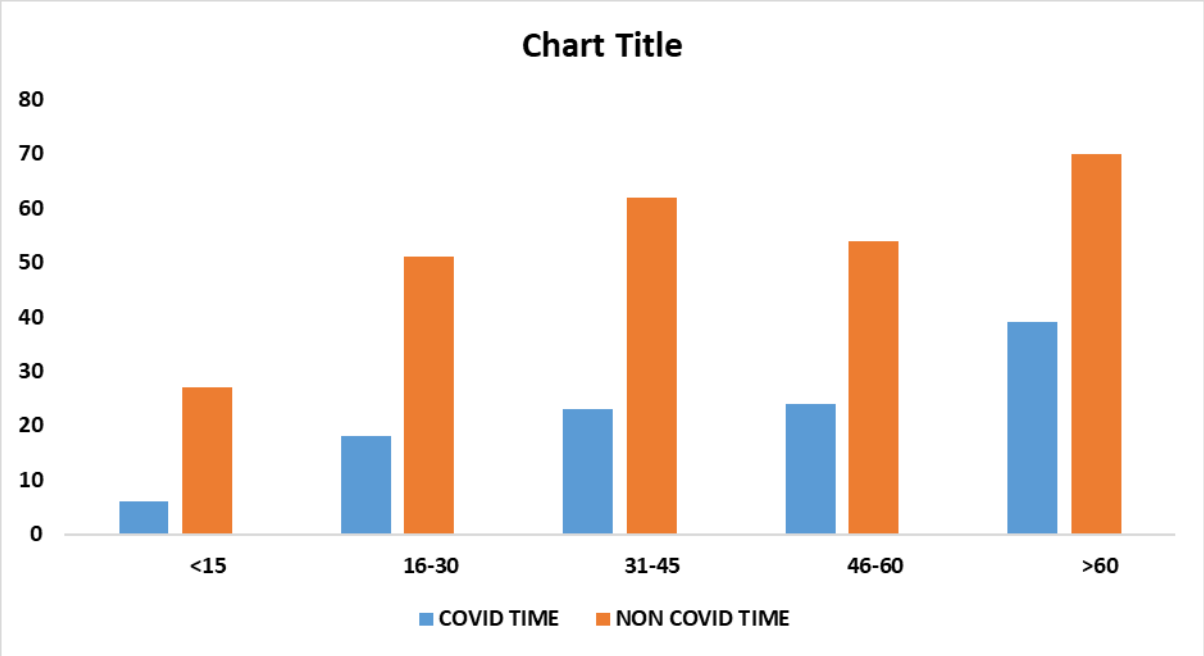

During covid time more trauma was seen around Hip, Ankle/Footand Wrist /Hand regions 59%.

During Non covid time increased trauma was seen around Thigh,Leg,Elbow and forearm regions

p-value of 0.162

REGION RELATION TO TRAUMA (TABLE-4)

REGION OF TRAUMA	COVID TIME (PERCENTAGE)	NON COVID TIME(PERCENTAGE)
HIP	38(34.5%)	58(21.9%)
THIGH	5(4.5%)	20(7.5%)
AROUND KNEE	8(7.3%)	18(6.8%)
LEG	14(12.7%)	36(13.6%)
ANKLE / FOOT	13(11.8%)	20(7.5%)
CLAVICLE/SHOULDER	3(2.7%)	14(5.3%)
ARM	4(3.6%)	12(4.5%)
ELBOW	4(3.6%)	18(6.8%)
FOREAM	13(11.8%)	39(14.7%)
WRIST/HAND	14(12.7%)	17(6.4%)
SPINE	4(3.6%)	12(4.5%)

Self-fall at home was the most common mode of trauma during lockdown about 40 percent.

Traffic accident was the most common mode of trauma during non covid time.

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p-value 0.0002

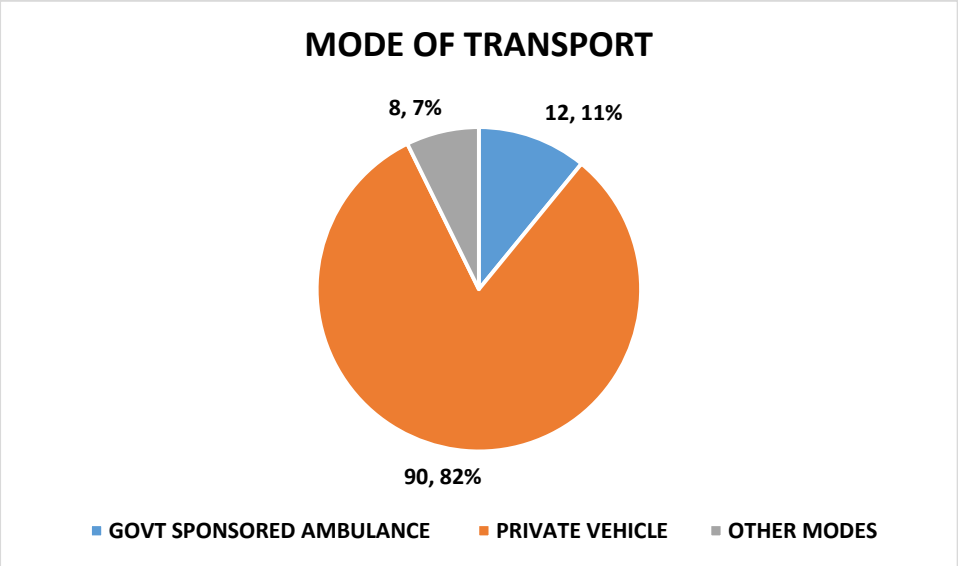
MODE OF TRAUMA (TABLE -5)

MODE OF TRAUMA	COVID TIME	NON COVID TIME
ROAD TRAFFIC ACCIDENT	18(16.3)	98(37.1)
SELF FALL (HOME)	44(40)	60(22.7)
FALL OUTSIDE HOME	33(30)	80(30.3)
OTHERS	15(13.6)	30(11.3)

Private vehicles (81%) was the most common mode of transport.

MODE OF TRANSPORT TO HOSPITAL (TABLE-6)

MODE OF TRANSPORT	NUMBER	PERCENTAGE
GOVT SPONSORED AMBULANCE	12	11
PRIVATE VEHICLE	90	81
OTHER MODES	8	7.2



Most of the patients got definitive treatment after 7 days of injury (51%)

DURATION BETWEEN INJURY AND DEFINITIVE TREATMENT (TABLE-7)

NUMBER OF DAYS	NUMBER OF PATIENTS	PERCENTAGE
> 7 DAYS	54	49
8-30 DAYS	38	34.5
> 30 DAYS	18	16.5

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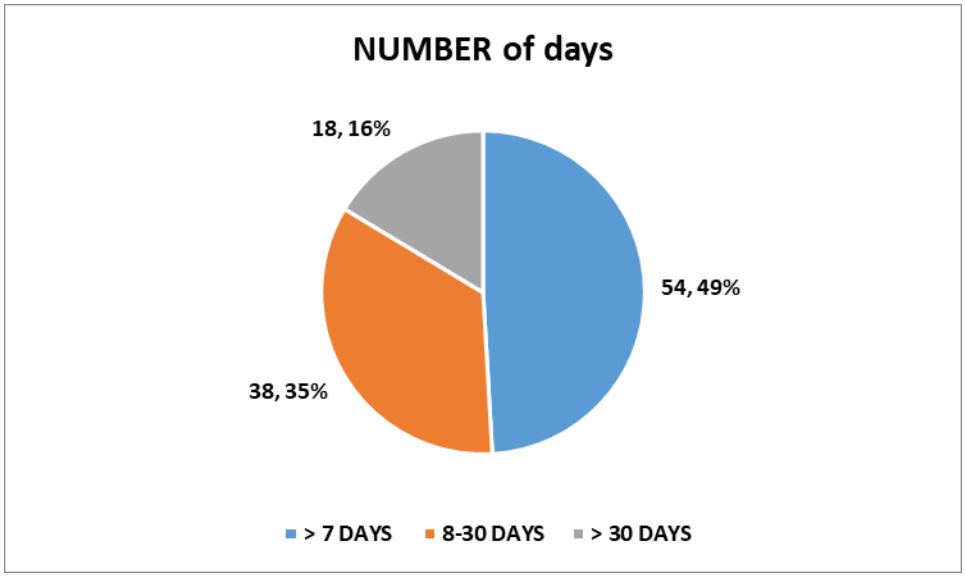
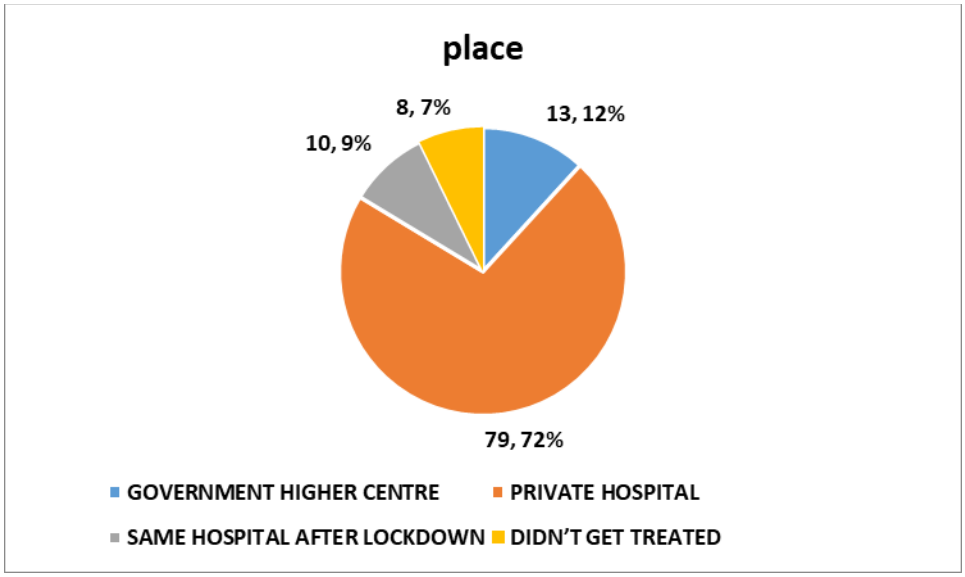


About 79 percent of patients got operated at private hospital during lockdown.

CENTER OF TREATMENT (TABLE-8)

PLACE	NUMBER OF PATIENTS	PERCENTAGE
GOVERNMENT HIGHER CENTRE	13	11.8
PRIVATE HOSPITAL	79	71.8
SAME HOSPITAL AFTER LOCKDOWN	10	9
DIDN'T GET TREATED	8	7.2



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Discussion

During the second covid lockdown period there was significant decrease in trauma when compared to normal period of 2019 about 58 percent , similar to findings of Maryada et.al [1] (62%),Raju vaishya et.al[2](55%), Elhalawany et.al [3] (58%). Orthopedic trauma tduring this rampant viral disease has been affected in many ways. Globally the cancellation rate for orthopedic surgery was estimated at 82%.[5] This is due strict lockdown measures and reduced incidence of outdoor activities resulting in decreased incidence of traumatic events.

There is increased relative percentage of trauma among males when compared to female during non covid time 2.38 when compared to covid time 2.14 .This is in similar to findings of Maryada et al [1] with ratio of 3.36 during non covid time and ratio of 2.15 during covid time .This is similar to findings of Elhalawany et.al [3.] of ratio between male to female of 1.17 during pre covid time to 0.8 during covid time. This is result of decreased outdoor activities during covid lockdown resulting in decreased trauma among males especially younger ones and osteoporotic fractures among elderly females not much affected by lockdown. Findings of Maryada et al [1] is similar in terms of ratio as the population studied is similar whereas Elhalawany et.al [3.] studied population which is different in demographics to the present study.

There is relative percentage increase of trauma during covid time in people with more than 45 years(57.3% vs 47%) of age especially above 60 years(35.5% vs 26.5%) of age and also increase in mean age of trauma (50.2 vs 42.1) when compared to non covid time. This relative increase in percentage of trauma among elderly was seen similarly in Maryada et al [1], Elhalawany et.al [3], Mahapatra S et.al [4] .The increased relative incidence of trauma among elderly patients may be due to osteoporotic fractures which is mostly likely due to fall at home and decreased exposure to sunlight resulting in vitamin D deficiency [6] .Restricted activity due to lockdown measures which affected more on younger patients resulting in less traumatic events resulting in decreased incidence among young adults .

There is relative increased trauma around hip , ankle and wrist region during covid time and decrease in trauma around arm , forearm, thigh and leg when compared to non covid time . This is similar to Maryada et al [1], Elhalawany et.al [3], Mahapatra S et.al [4] . Fractures frequently found in the elderly are fragility fractures around hip and radius and were found to be significantly increased[7]. Long bones fractures , including the humerus ,femur, tibia, ulna and radius were significantly decreased.This may be explained by the fact that following high-velocity trauma in the form of motor vehicle accidents were reduced [8]. Due to the complete shutdown and decrease in road traffic accidents,these fractures were decreased. Fractures of the axial skeleton, including pelvis injuries and spine, usually occur following fall from heights or high velocity injury. Although road traffic accidents were decreased, injuries following a fall were significantly increased in our series as most patients are rural engaged in agricultural activities. This led to a nonsignificant difference in the number of the fractures during the lockdown.

Due to lack of traffic and vehicular movements injuries following motor vehicle accidents was decreased . Injuries following falls and trivial trauma were significantly increased.

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Injuries following self fall at home was mostly seen in elderly people which was increased relatively which are mostly osteoporotic fractures . In younger adults road traffic accident was most commonly seen in middle aged adults . Even though reduced when compared to non covid time but was seen in younger adults as they were mainly involved in doing outdoor activities . Fall outside home which are low velocity injury was commonly seen in children and adolosecent age group. Other modes of trauma which included fall from height and assault was mostly seen in middle age group.

Private vehicle was the most common mode of transport (81%) as govt sponsored ambulance and public transport were difficult to get . This is in variance to Mahapatra.et.al[4] as his study was mainly in first lockdown . In second lockdown due to increased hospitilisation as covid cases increased exponentially it was difficult to get govt sponsored ambulance.

Majority of the patients got definitive treatment within first week of injury . However 51% of the patient took more than one week for definitive treatment out of which 16.5% took more than one month . The government hospital were declared as covid hospital referring patients . Private hospital were catering to increased covid patients .There were delay in treating patients due to covid protocol and increased cost of treatment.

Majority of the patients got treated at private hospital as they were catering to non covid care. Only a few governments higher centre were catering to non covid patients. Some patients got treated after lockdown was opened at the same centre. whereas few patients remained untreated.

Conclusion

There was significant reduction in trauma cases during second covid lockdown. Females were commonly injured during covid time .Elderly were commonly injured during covid time. Hip, wrist/hand and ankle/foot were the common region of trauma. Self fall was most common mode of injury. private vehicle was the most common mode of transport . Most patients had delayed treatment. Private hospital was the common centre for orthopaedic care during lockdown.

These findings will not only help us to analyse the particular pandemic lockdown but also helps us to understand that orthopaedic emergency management is also prime importance and prompt emergency management strategies. The covid pandemic affected the management of orthopaedic traumatic patients in government hospital as government hospital were declared covid centres by delaying treatment and also increased the cost of treatment on the already economically affected population.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest

ISSN: 0975-3583,0976-2833 VOL13, ISSUE 05, 2022

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ISSN: 0975-3583,0976-2833 VOL13, ISSUE 05, 2022