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# Presentation of Medico Legal Road Traffic Accident Cases Pre and Post 1st Wave of Covid-19 at an Tertiary Level Hospital in Tamil Nadu

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**Aim of the study** is to evaluate the effect of 1st wave of COVID-19 pandemic on the pattern of presentation and variation in case load of various medico-legal road traffic accident cases presented at a tertiary level hospital before and after 1st wave of COVID – 19

**Study conducted at** – Chettinad super specality hospital, Chettinad health city, Rajiv Gandhi Salai, OMR, Kelambakkam, Tamil Nadu

**ABSTRACT**

**AIM OF THE STUDY**: - To evaluate the effect of 1st wave of COVID-19 pandemic on the pattern of presentation and variation in case load of various medico-legal road traffic accident cases presented at a tertiary level hospital before and after 1st wave of COVID – 19 [preCOVID - Nov 2019 toJan 2020; PostCOVID 1STwaveNov 2020 to Jan 2021] at an tertiary level hospital in Tamil nadu

**Introduction**: - The Novel corona virus (COVID-19) infection, which was first reported in china in December 2019, has rapidly spread across the entire world. The world health organization (WHO) declared the COVID-19 outbreak as a global pandemic on 11th March 2020[1]. The government of India invoked the epidemic disease act, 1987 and declared COVID-19 an epidemic of serious concern and made an nationwide curfew from 24thMarch 2020 to 17th may 2020. This had an huge impact on the trauma cases even after the unlocking process begin due to various factors like less than 50 % employees and work restrictions at business establishments across various govt & private sectors, shopping malls, retail markets, restrictions to hotel restaurants and many public tourism spots, strict travel restrictions across the country and delay in reopening of schools and colleges made a lot less traffic on the road and hence it made an impact on incidence of road traffic accidents[3,4]. In our study we aim to analyze the impact of 1ST wave of COVID – 19 pandemic on incidence of medico legal road traffic accident cases that presented to our casualty before and after the 1st wave of COVID-19 pandemic.

**Materials and methods**: - It is an retrospective observational study conducted at Chettinad super specialty hospital.Medico legal road traffic cases from casualty nominal register were collected from 1stNov 2019 to 31stJan 2020 [pre COVID] and 1stNov 2020 to 31stJan 2021 [post COVID 1st wave]. Data collected from nominal casualty register contained following details name, age, sex, MLC number, address, details of accident – time, place and mode of injury, provisional diagnosis and first aid treatment and definitive surgical intervention details were included.

**Results:** - Number of MLC RTA cases has significantly decreased from 75.556 % [266 cases] during pre COVID 1st wave period to 24.431 % [86 cases] in post 1st wave of COVID-19. Orthopedic surgical intervention / procedures had decreased from 74.757 % [77 cases] in pre COVID period to 25.247 % [26 cases] in post COVID 1st wave period.

## I. INTRODUCTION: -

The Novel corona virus (COVID-19) infection, which was first reported in china in December 2019, has rapidly spread across the entire world. The first case of COVID-19 was reported in India on 30th January 2020. The world health organization (WHO) declared the COVID-19 outbreak as a global pandemic on 11th March 2020[1]. The government of India invoked the epidemic disease act, 1987 and declared COVID-

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19 an epidemic of serious concern. A strict curfew and national level lockdown was announced by our prime minister from 24thMarch 2020 to 17 may 2020 during this period there were strict regulations by government on vehicular movement[2], This had an huge impact on the trauma cases even after the unlocking process begin due to various factors like less than 50 % employees and work restrictions at business establishments across various govt & private sectors, shopping malls, retail markets, restrictions to hotel restaurants andmany public tourism spots, strict travel restrictions across the country and delay in reopening of schools and colleges made a lot less traffic on the road and hence it made an impact on incidence of road traffic accidents[3,4].A similar study was done pattern of domestic injuries during COVID-19 pandemic at our institute [3]. In our study we aim to analyze the impact of 1st wave of COVID-19 pandemic onmedico legal road traffic accident cases thatpresented to our casualty before and after 1st wave of COVID-19 pandemic.

## II. MATERIALS AND METHODS

It is an retrospective observational study conducted at chettinad super specialty hospital.Medico legal road traffic cases from casualty nominal register were collected from 1stNov 2019 to 31stJan 2020 [pre COVID period] and 1stNov 2020 to 31stJan 2021 [post COVID 1st wave period] data was collected from same month and time of the year in both pre COVID 1st wave and post COVID 1st wave to eliminate seasonal variation of RTA cases. All the road traffic accidents cases presented to our casualty an MLC registrations weremadeand included in this study.

Data collected from nominal casualty register as per inclusion and exclusion criteria and contained following details - name, age, sex, MLC number, address, details ofaccident [RTA] – time, place and mode of injury, provisional diagnosis, details of first aid treatment and definitive surgical intervention details were collected

Inclusion criteria:-

1) Mode of injury – vehicular or pedestrian road traffic accident
2) Medico legal registration
3) All age groups were included
4) Both male and female sex were included

Exclusion criteria:-

1) Non MLC cases
2) Brought dead cases

We segregated the collected data based on time of presentation i.e. before 1st wave of COVID and after 1st wave of COVID -19 pandemic, Sex, Age group – 4 age groups were made 0-20 years of age; 21-40 years of age; 41-60 years of age and 60 years and above were included as elderly group, Pattern of injury - orthopedic injuries vs non orthopedic injuries requiring appropriate surgical interventions.

Collected Data was processed and analyzed with appropriate statistical tools and results were documented, the impact of 1ST wave COVID-19 pandemic on incidence of MLC RTA cases was analyzed.

*Details of case distribution according to age group, sex, orthopedic injuries vs non orthopedic injuries requiring admission and surgical intervention are attached below in table no - 1.

**Table no - 1**

| Month & Year | Male | Female | Orthopaedic injuries | Other injuries | Total admissions | Total cases in casualty | 0 - 20 years | 21 - 40 Years | 41 – 60 Years | Above 60 years |
|---|---|---|---|---|---|---|---|---|---|---|
| Nov – 2019 | 74 | 20 | **31** | 22 | **53** | **94** | 15 | 61 | 17 | 1 |
| Dec - 2019 | 71 | 18 | **24** | 19 | **43** | **89** | 7 | 54 | 22 | 6 |
| Jan – 2020 | 66 | 17 | 22 | 21 | 43 | 83 | 9 | 55 | 12 | 7 |

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|---|---|---|---|---|---|---|---|---|---|---|
| **total Case in pre COVID 1st wave** | **211** | **55** | **77** | **62** | **139** | **266** | **31** | **170** | **51** | **14** |
| Nov - 2020 | 12 | 1 | 5 | 4 | 9 | 13 | 0 | 11 | 2 | 0 |
| Dec - 2020 | 18 | 8 | 9 | 4 | 13 | 26 | 3 | 17 | 6 | 0 |
| Jan - 2021 | 36 | 11 | 12 | 8 | 20 | 47 | 5 | 27 | 12 | 2 |
| **Total cases in post 1st wave of COVID** | **66** | **20** | **26** | **16** | **42** | **86** | **8** | **55** | **20** | **2** |
| **Grand total** | **277** | **75** | **103** | **78** | **181** | **352** | **39** | **225** | **71** | **16** |

**Statistical analysis:**
Summary of the data were obtained by summation and calculation of proportions and percentages

The reduction in the number of medico legal RTA cases was analyzed in total and also under each gender, age group and orthopaedic vs non orthopaedic injuries as a sub-group analysis. Chi-square test was used and analysis was performed to assess the significance of 1st wave of COVID -19 in reducing medico-legal road traffic accient trauma cases across all the age groups. The numbers before 1st wave of COVID-19 and after 1st wave of COVID -19 phases were compared and the significance of percentage reduction was assessed with a confidence interval of 95% and a significant p value was determined as p – < 0.05

## III. RESULTS: -

Total of 352 MLCRTA cases from casualty register were included among which 266 cases were from pre COVID period i.e. between Nov 2019 to Jan 2020 of which 211 were male and 55 female patients, 31 cases were between 0-20 years of age, 170 cases were of 21-40 years of age group, 51 cases were of 41-60 years of age, 14 cases were elderly above age of 60 years. From post COVID period i.e. Nov 2020 to Jan 202186 cases were reported of which 66 were male and 20 were female, 8 cases were between 0-20 years of age, 55 cases were of 21–40 years of age, 20 cases were between 41-60 years of age and only 2 patients were elderly above age of 60 years.

Among the allMLC RTA cases presented to our casualty only 51.420 % [181 cases] of cases required admission and surgical interventions of which 139 cases were from pre COVID period and 42 cases were from post COVID period.

Among which 56.906 % [103 cases] were of orthopedic injuries requiring orthopedic interventions[77 cases from pre COVID and 26 cases from post COVID period] and only 43.0939 % [78 cases] were of non-orthopedic injuries [among which 62 cases were from pre COVID period and 16 cases were from post COVID period] requiring non orthopedic procedures from Plastic surgery, Neurosurgery, CTVS, and General Surgery**.**

Number of MLC RTA cases has significantly decreased from 75.556 % [266 cases] duringpre COVID 1st wave period to 24.431 %[86 cases] in post 1st wave of COVID-19. Orthopedic surgical intervention / procedures had decreased from 74.757 % [77 cases] in pre COVID period to 25.247 % [26 cases] in post COVID 1st wave period.

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**Table – no – 2 – MLC RTA cases pre and post COVID period**

| Total no of cases in casualty | Total case pre COVID | Total cases in post COVID | Total male | Total male in pre COVID | Total male in post COVID | Total female | Female in pre COVID | Female in post COVID | Total admissions from casualty | Casualty admissions pre COVID | Casualty admissions post COVID | Orthopaedic injuries - surgical interventions | Non orthopaedic injuries requering surgeries | Orthopaedic injuries - surgical interventions pre COVID | Orthopaedic injuries - surgical interventions post COVID | Non orthopaedic injuries requiring surgeries pre COVID | Non orthopaedic injuries requiring surgeries post COVID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 352 | 266 | 86 | 277 | 211 | 66 | 75 | 55 | 20 | 181 | 139 | 42 | 103 | 78 | 77 | 26 | 62 | 16 |

**Table no – 3 - Sex distributions of presented MLC RTA cases**

| Total cases in casualty | % of male | % of female |
|---|---|---|
| Pre COVID period<br>100 % [266 Cases] | 79.323 %<br>[211 Cases] | 20.676 %<br>[55 Cases] |
| Post COVID period<br>100% [86 Cases] | 76.744 %<br>[66 Cases] | 23.255 %<br>[20 Cases] |

**Table no - 4 - MLC RTA case distribution according to age**

| **Month & Year** | **0 - 20 years** | **21 – 40 Years** | **41 –60 Years** | **Above 60 years** |
|---|---|---|---|---|
| Total Case in pre COVID 1st wave<br>100% [266 case] | 79.487 %<br>[31 cases] | 75.555 %<br>[170 cases] | 71.830 %<br>[51 cases] | 87.5 %<br>[14 cases] |
| Total cases in post 1st wave of COVID<br>100 % [86 cases] | 20.512 %<br>[8 cases] | 24.444 %<br>[55 cases] | 28.169 %<br>[20 cases] | 12.5 %<br>[2 cases] |
| Grand total =<br>100 % [352 cases] | 11.079 % [39 cases] | 63.920 % [225 cases] | 20.170 % [71 cases] | 4.923 % [16 cases] |

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**Table no –5 - Percentage of cases required admission and surgical interventions**

| Total cases in casualty | No of cases required admission & surgery |
|---|---|
| Pre COVID [266 cases presented to casualty] | 52.255 % [139 cases admitted and required surgical intervention] |
| Post COVID [86 cases presented to casualty] | 48.837 % [42 cases cases admitted and required surgical intervention] |
| Total 352 cases presented to casualty | 51.420 % [181 cases admitted and surgical intervention required |

**Table no – 6 orthopaedic vs non orthopaedic injuries and interventions done**

| Total no admissions | orthopaedic injuries / interventions | Non orthopaedic injuries / interventions |
|---|---|---|
| Pre COVID [139 cases] | 50.993 % [77 Cases] | 34.254% [62 Cases] |
| Post COVID [42 cases] | 14.364 % [26 Cases] | 8.839 % [16 Cases] |

**Table – 7 - Percentages of MLC RTA cases in pre and post COVID 1st wave**

| % of mlc rta cases in casualty | % of cases in pre COVID | % of cases in post COVID |
|---|---|---|
| 100% [352 cases] | 75.556 % [266 cases] | 24.431 % [86 cases] |

**Table no - 8 Orthopaedic surgical intervention pre and post COVID 1st wave**

| Total no of orthopaedic surgeries | no of cases operated in pre COVID | No of cases operated in post COVID |
|---|---|---|
| 100 % [103 cases] | 74.757 % [77 cases] | 25.247 % [26 cases] |

## IV. DISCUSSION: -

The number of MLC RTA cases decreased considerably from 75.556 % pre COVID 1st wave to 24.431 % in post 1st wave of COVID – 19 pandemic.MLC RTA cases decreased considerably among all age groups but it was very evident among elderly population. Among 0-20 years MLCRTA cases decreased from 79.487 % pre COVID to 20.5128 % post COVID, Among 21-40 years age group cases decreased from 75.555 % to 24.444 % in post COVID period, Among 41-60 years age group cases decreased from 71.830 % to 28.169 %, And among elderly group i.e. 60 years and above incidence of RTA reduced from 87.5 % to 12.5 % .

The reduction in total MLC RTA cases due to 1st wave of COVID-19 was statistically significant.

People had slowly resumed road travels after 1st wave of COVID – 19 but there is an unseenchange in people's lifestyles, as people have become more health conscious, hygienic and are maintaining social distancing and following road traffic regulations. "work from home wfh has become new normal after 1st wave of COVID-19 pandemic and schools, colleges are yet not fully functional or had not reopened at all in some parts of the state, marriage function halls, cineplex's and shopping malls, retail shopping market and street side vendors, famous tourism spots have been restricted,also a strict regulations on inter district and interstate travels have thereby reducing the requirement of travel and congestion on roads. Unfortunately, there were increased reports of domestic violence and psychological problems have become to rise during 1st wave of COVID – 19 pandemic. Only time can tell whether these

changes in lifestyle will reduce the number of injuries in future or not.

**Conclusion:** - We observed that there was significant decrease in number of medicolegal road traffic case presenting to our casualty from 75.556 % [266 cases] from pre COVID period [Nov 2019 to Jan 2020] to only 24.431 % [86 cases] during post COVID 1st wave [Nov 2020 to Jan 2021]**.**

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## REFRENCES

[1]. Cucinotta, d., & vanelli, m. (2020). Who declares COVID19 a pandemic. Acta bio-medica, 91(1), 157–160. Https://doi. Org/10.23750/abm.v91i1.9397.

[2]. . Government of India, ministry of home afairs. (2020). Government order no.40–3/2020-dm-i (a). Updated 24th March 2020. Mha.gov.in. 2020. Circulars for COVID-19 | ministry of home afairs | goi. Https://www.mha.gov.in/notif ications/circulars-COVID -19. Accessed 7 june 2020

[3]. A Study of Incidence, Severity and Pattern of Domestic Injuries during the Covid- 19 Pandemic Dr U Sandeep , Dr Rajakeerthana D, Dr Santhini Gopalakrishnan S Mch Plastic Surgery Chettinad Super Specialty hospital, Kancheepuram Postgraduate Student MS General Surgery, Chettinad hospital and Research institute MD Biochemistry, Associate professor , CHRI; International Journal Dental and Medical Sciences Research Volume 3, Issue 2, Mar-Apr. 2021 pp 909-914 www.ijdmsrjournal.com ISSN: 2582-6018

[4]. Road traffic injuries [internet](2020). WHO.int. 2020. Https:// www.who.int/news-room/fact-sheets/detail/road-traffic-injuries. Accessed 2020 Jun 10.

[5]. National health profle 2016, 14th issue. (2020). Ministry of health and family welfare, government of India. Indiaenvironmentportal.org.in. 2020 https://www.indiaenvironmentportal.org. In/files/file/national%2520health%2520profi le%2520201621 2.pdf. Accessed 2020 Jun 10.