Original Article

Impact of COVID 19 lockdown on Medico Legal Cases in a Tertiary Care Hospital in North Kerala

Ajesh P P[1], Levis Vaseem M[2], Aswathy Raj S V[3]

[1]Assistant Professor, Department of Forensic Medicine, Government Medical College Kozhikode, Kerala, [2]Assistant Professor, Department of Forensic Medicine, Government Medical College Manjeri, Kerala, [3]Assistant Professor, Department of Community Medicine, Government Medical College Kozhikode, Kerala.

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Abstract

Background: The consequence of Covid 19 lockdown on medicolegal cases was variable throughout the world.

Methodology: A descriptive cross sectional study was conducted in a tertiary care hospital setting and other public health institutions in the same district with the objective of comparing thetotal number of medico legal cases, any increase or decrease in the unnatural (accidental, suicidal and homicidal) versus natural deaths and also whether any increase or decrease of coronary artery disease among the brought dead natural cases during pre and the lock down period.

Results: Among the total number of medicolegal cases came for autopsy (237), 65.8% were during pre lock down period and 34.2% were during lockdown period. This indicates a significant reduction in the number of cases during lockdown compared to pre lockdown in both type of institutions. This reduction in number of cases were observed in all the type of cases as indicated by reduction in unnatural deaths (30.2%versus 69.8%), small reduction in natural deaths (46.3% versus 53.7%), accidental deaths (26% versus 74%), suicidal deaths (36.2% versus 63.8%), reduction in Road traffic accidents(26.3%versus 73.7%), deaths following coronary artery disease (42.9%versus 57.1%). The age distribution of deaths due to coronary artery disease during the pre lockdown period was in a range of 28 – 85 years and during lockdown period was 33- 78 years with a median of 48 years in both groups.

Conclusion: Regardless of the type of, there is reduction in the number of medicolegal cases during lockdown compared to pre lockdown in both the types of institutions.

Key words: Covid 19, Impact,Lockdown, Medicolegal cases.

Introduction

The COVID-19 epidemic has affected many countries and the World Health Organization has declared it 'Pandemic'. Government of India (GOI) has taken several preventive and mitigating measures including quarantine.India has witnessed a significant decrease in the number of overall deaths due to complete lockdown imposed since March 25. A consequence of lockdown has been a fall in the number of deaths reported across India as a result of fewer crimes and a huge reduction in road fatalities. While country-wide data is not available, accounts

Corresponding Author: Ajesh P P, Assistant Professor, Department of Forensic Medicine, Government Medical College Kozhikode, Kerala.

E-mail: drajeshpp@gmail.com

of police officers and hospital emergency workers in certain states indicates that there is a 40% fall in murder cases during the period of lock down as opposed to the same period previous year.[1,2,3]

Also, COVID-19 pandemic has created major mental health challenges. Based on a systematic review, 31 global studies exhibit a positive association between economic recession and increased suicide rates.As the country was under lockdown, restricted movement may have resulted in psychological distress and loneliness, lack of access to addictive substances led to psychological distress leading to suicide.[4,5,6]

Reports have emerged of an apparent increase in domestic homicides in a number of affected countries. There has been a steep rise in crime against women across the country amid restrictions imposed due to the COVID19 outbreak. In Milano in less than 2 months, medico legal autopsies have drastically decreased by 70%. [7]2020,[8,9]

As COVID 19 and lockdown are new, fewer data were available on region wise and also lack of comparison of medicolegal cases before and after lockdown .In this scenario there is an urgent need to explore these unaddressed areas.

Objectives

1. To compare the total number of medico legal cases coming to Govt. Medical College Manjeriand other public health institutions in the same district, which are authorized to conduct autopsies during the pre and lock down period.
2. To assess and compare any increase or decrease in the unnatural (accidental, suicidal and homicidal) andnatural deaths coming for medico legal autopsies.
3. To assess whether thereis any increase or decrease of coronary artery disease among the brought dead natural cases.

Materials and Methods

This isadescriptive cross-sectional study conducted in Govt. Medical College, Manjeri, Malappuram district which is a tertiary care teaching hospitaland the other public health institutions in the same district which are up to secondary level and are authorized to conduct autopsies. All medico legal cases and deaths during the lock down period in the first 54 days (from 25/03/2020 to 17/05/2020) were compared with cases during previous 54 days (31/01/2020 to 24/03/2020) of lock down. The data were collected from the existing records using a structured proforma after perusing the medico legal records/registers of all the institutions authorized to conduct autopsies. Since there are no previous studies available, all medicolegal cases during the specified period were taken. The study was conducted after approval from the institutional ethical committee and data collection was completed after 6 months of approval. A written permission from the District Medical Officer Malappuram was obtained before the starting the study.The response so obtained wereenteredin MS Excel and the statistical analysis was conducted using SPSS18 version. The qualitative variables were expressed as frequencies and percentages and quantitative variables as mean with SD, range and median. Possible associations were calculated using chi square test.

Results and Discussion

Total number of medicolegal cases came for autopsy preand duringcovid19 lockdown period was 237. Out of this 65.8% were during pre lockdown period and 34.2% were during the lockdown period.

There is statistically significant difference in the distribution of cases came for autopsy between tertiary level hospital and secondary level institutions during these periods. Altogether, there is significant reduction in the number of cases during lockdown compared to pre lockdown in both these institutions. This is in accordance with the study conducted worldwide, which clearly states that there was overall mortality reduction due to reduction in incidence of disease due to lockdown.[10] But a study done in Northern Italy, suggests that a significant hike in natural infective deaths especially in older people by Covid 19 infection.[11]

In spite of this, during lockdown there is significant increase in the number of cases brought for autopsy in tertiary care hospital compared to secondary level. (Table no.1a)

Total unnatural deaths were 72.6%, natural deaths were 22.8%, and in conclusive were 4.6%.

There is a big reduction in unnatural deaths during lockdown compared to pre lockdown and a small reduction in natural deaths,during lockdown versus pre lockdown period 5. (Table no.1b)

Table 1: The distribution of cases based on number and nature of deaths.

a. Distribution of total number of cases				
Type of institution	**Pre lockdown N (%)**	**Lockdown period N (%)**	**Total N (%)**	Chi square value =6.48, p value=0.011, df 1
Secondary level	75 (75%)	25 (25%)	100 (100%)	
Tertiary level	81 (59.1%)	56 (40.9%)	137 (100%)	
b. The distribution of cases based on nature of death				
Nature of death	**Pre lockdown N (%)**	**Lockdown period N (%)**	**Total N (%)**	Chisquare value = 4.74, p value= 0.094, df 2
Natural cause	29 (53.7%)	25 (46.3%)	54 (100%)	
Unnatural cause	120 (69.8%)	52 (30.2%)	172 (100%)	
Inconclusive	7 (63.6%)	4 (36.4%)	11 (100%)	

Among the un natural deaths, 100 (58.1%) are accidents, 69 (40.1%) are suicides and 3 (1.7%) are homicides.

Among accidental deaths, 74% were during pre lockdown period and only 26% were during the lockdown period. This indicates that there is a reduction in the accidental deaths during Covid lockdown period. Among suicidal deaths also, there is a reduction of deaths in pre lockdown compared to lock down. That is indicated by 63.8% of suicidal deaths in pre lockdown compared to 36.2% in the lockdown period.This is against a study done in Queensland, Australia, showed that Covid 19 pandemic had no effect on suspected suicide rates for the first 7 months of lock down .[12] In this study, though small, still there is a reduction in homicidal cases in pre lockdown compared to lockdown period. (Table no.2 a)

Considering the manner of suicides, among the total cases, 85.5% were hanging, 11.6% were poisoning and 2.9% were due to burns. There is a reduction in hanging cases during lockdown period (35.6%) compared to pre lockdown period (64.4%). Similarly, poisoning cases also were decreased during lockdown period (37.5%) compared to pre lockdown period (62.5%). (Table no.2 b)

Considering accident cases, 57% were road traffic accidents and others were 43%. Others includes fall, drowning, aspiration, electrocution and burns.

Similar to the suicidal deaths, the accidental deaths were also decreased during lockdown period compared to pre lockdown period. Road traffic accidents were decreased from 73.7% in the pre lockdown period to 26.3% in the lockdown period. This may be due to reduced outdoor activity and travel as a consequence of lockdown imposed during that time. Similarly, other types of accidents also reduced from 74.4% in the pre lockdown period to 25.6% in the lock down period.(Table no.2 c)

Table 2: Distribution of unnatural cases during pre lockdown and lockdown period

a. Distribution of manner of death of unnatural cases				
Manner of death in unnatural cases	**Pre lockdown N (%)**	**Lockdown period N (%)**	**Total N (%)**	Chi square value = 2.04, p value= 0.36, df 2
Accidental	74 (74%)	26 (26%)	100 (100%)	
Suicidal	44 (63.8%)	25 (36.2%)	69 (100%)	
Homicidal	2 (66.7%)	1 (33.3%)	3 (100%)	

b. Distribution of manner of suicide				
Type of suicide	**Pre lockdown N (%)**	**Lockdown period N (%)**	**Total N (%)**	Chi square value =0.18, p value=0.91, df 2
Hanging	38 (64.4%)	21 (35.6%)	59 (100%)	
Poisoning	5 (62.5%)	3 (37.5%)	8 (100%)	
Burns	1 (50%)	1 (50%)	2 (100%)	
c. Distribution of accident deaths				
Type of accident	**Pre lockdown N (%)**	**Lockdownperiod N (%)**	**Total N (%)**	Chi square value =0.007, p value=0.93, df 1
Road traffic accidents	42 (73.7%)	15 (26.3%)	57 (100%)	
Others	32 (74.4%)	11 (25.6%)	43 (100%)	

Among the natural cases, 35 had coronary artery disease. Similar to other deaths, deaths following coronary artery disease also decreased in the lock down period (42.9%) compared to pre lock down period (57.1%) but the difference is small(Figure no.1). For this minimal decrease in coronary artery disease, we have to find out the correlation, between thrombosis and myocarditis with Covid 19 infection in subsequent studies.

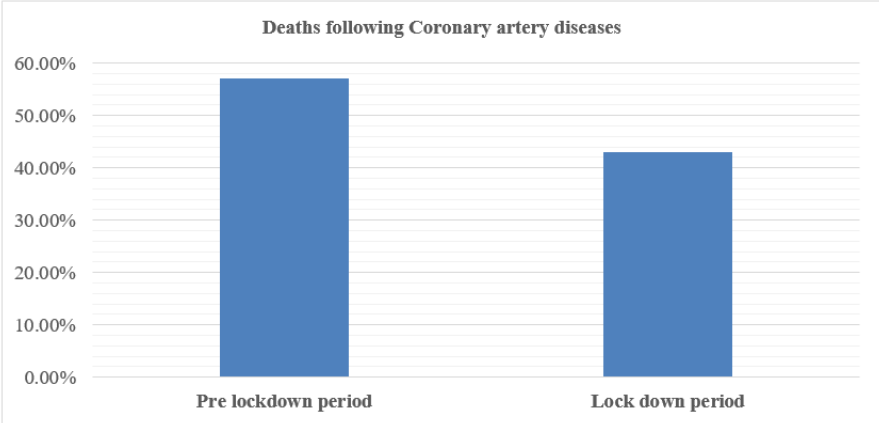

Figure 1: Distribution of deaths following coronary artery disease.

The age distribution of deaths due to coronary artery disease during the pre lockdown period was in a range of 28 – 85 with a mean of 53.4 years and SD of ±14.9 and for during lockdown period was 33- 78 with a mean of 54.85 years and SD ±16.7 and median of 48 years in both groups. This is comparable in both the groups.

Conclusion

Thisdescriptive cross-sectional study concludes that there is a reduction in majority of the types of medicolegal cases brought for autopsy in these institutionsduring lock down period compared to pre lock down with a small exception to coronary artery disease, where the difference is minimal. There is not much difference in age distribution of natural cases due to coronary artery disease during these periods. Standardised recording of cause of deaths will help in measuring the public health impact of Covid 19 , planning of possible intervention and allocation of resources.

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