Original Research Article

Profiling of Home/On the way mortality found SARS-COV-2 positive in Rajasthan during the current season-April to July 2020 For Strategic Interventions

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Abstract

Background: First case reported from this empowered action group state on 2.3.20 from international tourist after which state saw an staggered spurt in COVID 19 cases along with rising mortality. Rajasthan was one of the foremost affected state bearing the frontal attack likewise geographicaly extensive states MP &Gujrat. Making indespensable for converting information into evidence for timely identification of causal drivers &revising strategies in pandemic inferno. **Objective**:To sketch out the mortality profile with respect to demographic and clinical progression with an aim to identify the groups,this virus conspicuously pickedup with a perspective to control some of the avoidable factors.**Methods:**We analyzed the epidemiological data in 56 RT-PCR confirmed deaths of COVID 19 patients who were brought dead that occurred between 1st April 2020 and 31st July 2020 over a period of 120 days throughout Rajasthan by community surveys . A 3 member team of sector health workers(ASHA/ANM/Medical officer) were constituted for verbal autopsy of deceased kith/kin after informed consent & 3 weeks after death . A written format for detail discussion with family members was pre hand given which later culminated into a single page dossier for identification of level of delays that lead to a death & actionable points from team itself. These delays were classified into 6 broad categories i.e L1-Delay in seeking health care , L2-delay in availing transport facility, L3- Delay in getting optimum treatment , No Delay,Non COVID Death & cause unknown .Later inspired by the positive feedback impact government facility death review mechanism was also institutionalized steerheaded by medical education department to enrich the available knowledge of prevention & treatment. **Results:**Atotal of 650 patients died during four months period from 2 March to 5 July out of which 56 brought dead mortality cases presenting with COVID (+) post expiry were analyzed. 26 deaths occurred in the 30-60 years of age group. The mean age being 46.48 years. Males had a marginally increased mortality rate (F: M-1:1.43). The mean time of onset of symptoms to hospitalization was 7.8 days. Thirty Nine (71%) patients were from urban areas, whereas 7(13%) belonged to rural areas.Only 23.52 % patients presented within 24 - 48 hours whereas 33% presented within aday of onset of symptoms& 25.49 % presented within 4-7 days wheras 17.64% had no symptoms .On economic status front 84% belonged to Non Below Poverty line (NBPL) & rest were BPL .Educational status was 34% were 5th pass,23% uneducated ,20 % 8th pass & rest 11 % were 10th pass & graduate.77% deaths were without any associated cause of death. Based on initial rounds of facility level reviews 66.9% succumbed within 5 days of hospitalization, despite starting for hospital in advance .56.86% had predisposing risk factors. **Conclusion**: On the way/home mortality of 8.06% was found out of total some 694 (April-July-20) which was low as house to house survey conducted &community awareness campaigns thru health worker helped in sensitization of general public . As acorollary of this analysis the authors are of the opinion that a rejig of the existing guidelines to identify and treat influenza like illness be made available at the national level. What factors promote rapid progression especially in a group without any predisposing risk condition should form the focus of future studies. As risk group individuals formed a major chunk of deaths, the need to vaccinate this group should form a scaffold on which future directions and interventions have to be builtup to combat the morbidity and mortality

Keywords: COVID,RT-PCR

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Introduction

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Influenza has remained a fascinating mode of research for public health experts,epidemiologist, physicians, molecular biologist . The unique characteristic of antigenic shift and drift mimics a science fiction, producing novel "transformers" eventually affecting population at large. The signature of Influenza epidemics is usually expressed in the form of excess rate of pneumonia, progression to acute respiratory failure with resultant mortality and influenza-associated hospitalization sometimes associated with multi systemic features. A total of 57414 laboratory confirmed cases of COVID 19 were recorded in the state of Rajasthan (Source www.rajswasthya.nic.in)as on 14.8.20 out of which a total of 798deaths occurred due to the current circulating strain. The first pandemic of influenza occurred in 1918 ("Spanish influenza"). It was attributed to killing 40-50 million worldwide and 10 to 20 million in India with a mortality rate of 10%[1,2]. The current circulating novel virus identified in Wuhan china is SARS-CoV-2 causing the pandemic of 2019-2020.WHO declared the pandemic. The pandemic is now predicted to continue circulation as a seasonal virus for years to come[3-5].

Materials and Methods

The present study was a community based observational study done in Rajasthan over a period of 120 days between April to July 2020. Patients found positive for COVID by RT-PCR after death were included in the study[6-9]. A 3 member team of sector health workers (ASHA/ANM/Medical officer) were constituted for verbal autopsy of deceased kith/kin after informed consent & 3 weeks after death. A written format for detail discussion with family members was pre hand given which later culminated into a single page dossier for identification of level of delays that led to a death & actionable points from team itself. These delays were classified into 6 broad categories i.e L1-Delay in seeking health care, L2-delay in availing transport facility, L3- Delay in getting optimum treatment, No Delay, Non COVID Death, & cause unknown.Later inspired by the positive feedback impact government facility death review mechanism was also institutionalized steerheaded by medical education department to enrich the available knowledge of prevention & treatment.

Observations and Results

A total of 56 brought dead covid positive patients (those who lost their lives while in transit or at home) were studied

Table 1: Level Of Delays with cases

L-1	13
L-2	0
L-3	5
Non-COVID	5
No Delay	19
Not Auditable	5
Not Brought dead	7
Unknown Cause	2

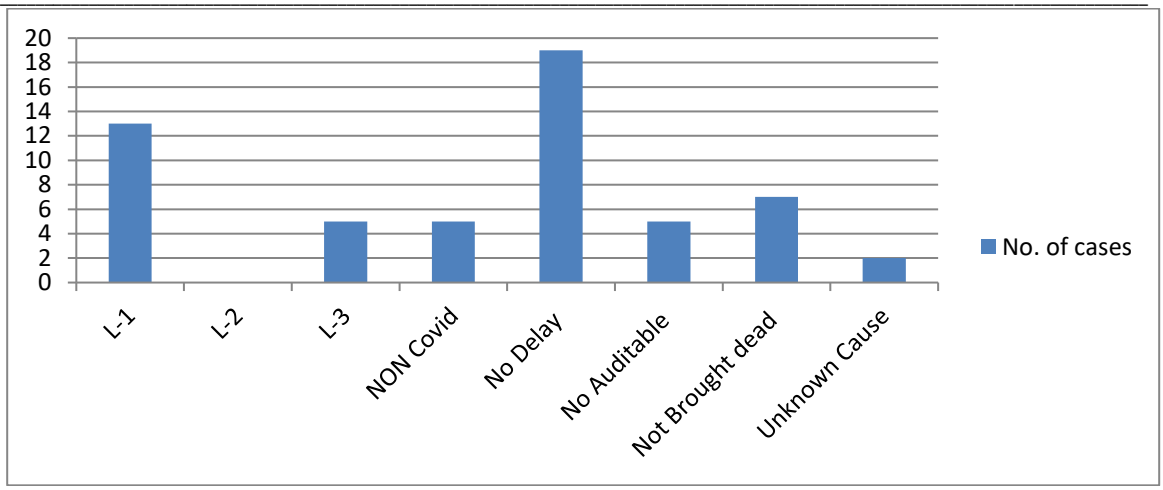

Fig 1: Causal Analysis Histogram

The mean age was 46.48 yrs. The overall case fatality rate was 1.39 %(798 deaths out of total 57414 tested positive by RTPCR gold standard) (Source www.rajswasthya.nic.in) on 14.8.20. Most of the cases (46.42%) were in 30 to 60 years of age (Table 2).Male to female ratio was 1.43:1(males 33 and females 23). Out of 23 females, 1 pregnant and she died in postpartum period , succumbed to post partum Hemorrhage. The urban to rural division of deaths was 71% to 13% respectively with 16% as unknown. The mean time lag to hospitalization was 7.8 days, with a range of 1 day to more than 7 days. Majority of the patients (60.3%) presented between 72 hours and one week of symptoms onset (Table 3).

Table 2: Age-wise distribution of Death

Infant Death	1
1 to 18	2
18-30	8
30-60	26
above 60	19
Total	56

Mean time lag between symptoms and death was 7.6 days with a range from less than 1 day to more than 7 days.

Table 3: Duration of illness

Time lag	No. of pts.(n=56)	Percentage
Within 24 hours	17	30.35
24 to 48 hours	6	10.71
48 to 72 hours	6	10.71
72 hour to 7 days	6	10.71
> 7 days	7	12.5
No symptoms	9	16.07

Only 30.35 % patients presented within 24 hours, 10.71.% presented within 5 days of onset of illness. Mean time of presentation: 7.6 days. Almost 66.9% of the patients succumbed within 5 days of sign/symptoms.

Table 4: Predisposing risk factors /co- morbid conditions

Risk Group	No. of Patients	Percentage
Diabetes mellitus	8	14.28
BP	5	8.9
Asthma	3	5.35
TB	1	1.78
COPD	2	3.5
Old Age >65	11	19.64
Diarrhea	1	1.78
Infection	1	1.78
Cardiac Disorders	2	3.5
Liver Disease	2	3.5
Chiken pox	1	1.78
No Risk	17	30.35

Presence of co-morbidities was an important contributory factor. 39 patients had 1 or more comorbid factors and 17 patients (30.35%) had no risk factors or co-morbid conditions.Diabetes was found in 8 (14.28%) patients.

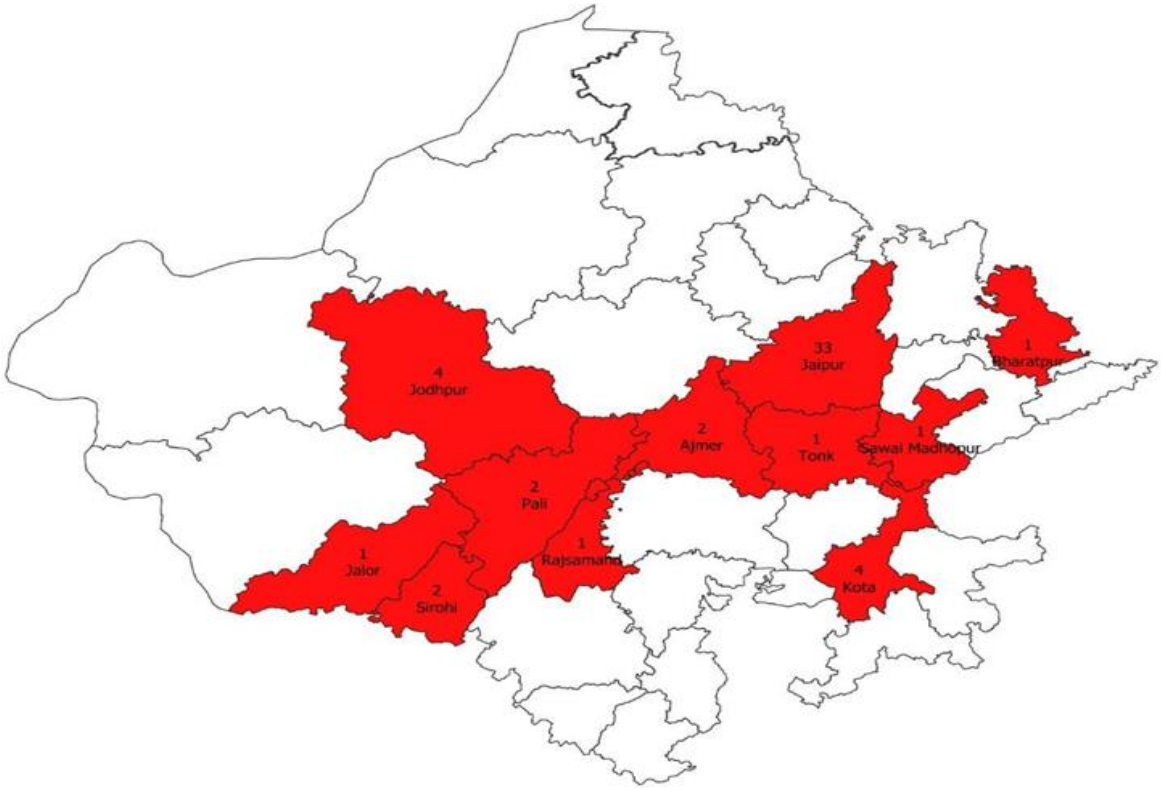

Fig 2:Status of home/transit COVID 19 mortality as of 31st July-20

Discussion

COVID 19 affects primarily the very young, elderly, and those with co- morbidities. But the epidemiologic hallmark of pandemic influenza is its "pandemic" signature meaning most early mortalities are among young healthy adults[6].The noteworthy features were rapid progression of disease and high early mortality. The demographic profile of 56 fatal cases revealed a mean age of 46.48 years. 46.43% deaths were recorded in the age group of 30to 60 years. Regan et al[7] in their study also recorded a mean age of 45years. This probably indicates an overwhelming virulence.The "critical phase" in influenza starts much earlier (57.4% presented with a short history of 5 days or less). The need to identify the factors of these rapid progressors shall remain a daunting task. Among the major predisposing risk factors amongst 69 institutional review diabetes was seen in 44.92 %, chronic lung conditions in 13.04%, 33.33% of the patients who died had no risk factors.

Conclusion

As delineated in our study, the majority of patients presented within 5 days of the onset of illness and yet these patients succumbed to this viral illness. The authors are of the opinion that categorization of level of delay has been useful, yet there is a significant proportion of cases who progress rapidly. What factors contribute to rapid progression whether failure to take the severity of disease seriously,on time testing , unavailability of routine services at health centres on account of being converted into designated COVID centres , sudden fall in oxygen saturation or unable to handle the mental stress should form the epicenter of focus especially in people without any risk factors. Identifying influenza-like illness (ILI) symptoms of fever, myalgias, cough, rhinorrhea along with an important sign of pharyngeal congestion specifically pregnant females / diabetics and patients with chronic lung conditions like fibrosed lungs due to pulmonary tuberculosis in our country, besides, bronchial asthma or COPD, should help to curb down the morbidity and mortality rates.With the advent of the concept of "ring prophylaxis"[11]by testing ,contact tracing & treatment of ILI & SARI are more widely practiced. The importance of participation of physicians and healthcare workers to identify ILI patients and recommending them social distancing & home isolation [12] cannot be undermined to stall the "herald waves" of imminent influenza. However, a sort of non-confrontational antagonism does exist between principles of internal medicine and principles of alternative medicine. The practice of herbal / Ayurvedic preparations like *KADA* (an Ayurvedic concoction) has been much publicized without any scientific foundation or head-on trials. The possibility thus remains that people with influenza-like illnesses may avoid seeking proper medical care and resort to alternatives with the hope of a cure, protection or both.

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The sudden rise in COVID 19 cases in the first few weeks of March 2020 led to formation by the State Government of Rajasthan of a very proactive task force to intimidate the demon of COVID 19. The chairman of this task force was none other than the Mr. Rohit Kumar Singh, Additional Chief Secretary Health, Department of Medical Services, Government of Rajasthan. Principal Health Secy Shri Akhil Arora ,Dr. Sudhir Bhandari, Principal and Controller, SMS Medical College, Jaipur,Dr.K.K Sharma, Director Medical Health Services & Director RCH Dr. R S Chhipi of State of Rajasthan and various experts. The authors thankfully acknowledge their guidance, encouragement and support for this work.

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