ORIGINAL ARTICLE

Profile of COVID 19 positive patients of Balochistan, Pakistan

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Abstract

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Background: Current study aim to describe epidemiological, clinical and demographic features in patients confirmed to have COVID-19 in Balochistan

Methods: This descriptive cross sectional Study was conducted during months of March and April 2020 based on the secondary data available regarding COVID-19 positive patients from the health service records of Government of Balochistan quarantine centers and hospitals during this period. Data was analyzed by using Excel and SPSS version 23. Mean and standard deviations are used for continuous variables like age and duration of stay (of recovered patients), while frequencies and percentages were used to describe age categories, point of entry and current status. Age specific case fatality rate is calculated by keeping deaths in numerator and confirmed cases in denominator.

Results: Mean age of respondents was 35.3±16.12 years , two third of the study population i.e,652(76.3%) were males,353 (40.6)% were in the age group 30-49 years and 417(48.9%) had history of contact with COVID-19 case. Overall case fatality rate was 1.87% and Age Specific Mortality Rate was found to be highest (30%) in age group 70 years and above

Conclusion: The epidemiologic behavior of COVID-19 infection introduced in Pakistani population from neighboring country has responded differently in community spread among different ethnic groups represented in different provinces of Pakistan. The case fatality ratios among Baloch ethnic group were much lower than international COVID-19 case responses

Keywords: COVID 19, Quarantine Center, Case Fatality Rate, Age Specific Mortality Rate

Introduction

Coronavirus disease (COVID-19) is caused by newly discovered group of coronavirus (1). SARS-CoV-2 is the member of β-coronavirus cluster. After SARS and MERS, COVID-19 is the third known zoonotic coronavirus (2) On 30 January 2020 , the WHO Director-General declared COVID-19 as Public Health Emergency of International Concern (3)The WHO risk assessment is 'very high' globally as worldwide cases climb above 76,250,431 and 1,699,230 deaths(4). As reported of today 23-12-2020, currently there are 462,814 cases of COVID 19 in Pakistan with 9557 deaths (5). COVID-19 presents with a wide clinical spectrum ranging from asymptomatic patients to septic shock and multi organ dysfunction (6). The early presentation of COVID-19 infection might be typically nonspecific. Some infected cases may be asymptomatic, while many infected individuals often show flu-like symptoms such as fever, sore throat, dry cough, or malaise in the first few days(7)

Statistical analysis of cases and fatalities has identified numerous risk factors leading to mortalities and complications from COVID-19. Specifically, the risk of serious complications and mortality increases

dramatically in males (8, 9, and 10) and in old age (8, 9, and 11). Case fatality rates, Age and sex specific mortality and morbidity rates are used when the rate of disease is highly variable by age, as in COVID-19(12)

Till date Belgium is having highest case fatality rate i.e., 16.37%, followed by UK 14.96% and France 14.82%. Current CFR of Pakistan is 2.34% (13) .The general case-fatality rate in China (2.3%) is significantly lower than in Italy (7.2%).After age stratification, fatality rates are higher in Italy among individuals aged 80 years or older(14)

Research conducted by Regional research laboratory of Italy showed that age and sex specific CFR in age group 80-89 years was 17.94% in females and 29.81 %in males of same as group. For age> 90 years, CFR in females was 19.41% and males were at 32.26% (15) .In Pakistan , age group 60-69 years showed case fatality rate of 23.5% in males while females had 9.14%(16)

Iran's inability to limit the spread of the coronavirus within its borders has badly affected neighboring countries such as Pakistan (17). Balochistan reported its first case of COVID-19 on March 10, and over the few weeks, the cases multiplied exponentially. Balochistan provincial health department's data shows that approximately 7000 people crossed the border during COVID-19 pandemic (18) Quarantine center at Taftan, epicenter of Pakistan's infection proved to be source of further infection spread due to reported protesting or fled individuals from quarantine facilities in Quetta and Taftan (19) Reports showed that Balochistan had neither the necessary infrastructure nor a competent medical staff to deal with the pandemic (17)

On February 26, 2020 in Karachi, Sindh province the first case of COVID-19 was confirmed by the Ministry of Health, Government of Pakistan. On the same day another case confirmed by the Pakistan Federal Ministry of Health in Islamabad (20). Within fifteen days, the number of total confirmed COVID-19 cases reached twenty (20) out of 471 suspected cases with majority in the Sindh province followed by the Gilgit-Baltistan. All of the confirmed cases had recent travel history from London ,Syria and Iran (16) The reason of choosing study setting in Balochistan is that Taftan being border town with Iran; faced the mass influx of thousands of pilgrims forcibly returned from Iran , after Iran was in grip of a massive outbreak of COVID-19, but also experienced hurried establishment of first Quarantine center in the country's remote end and

faced danger of spread of the infection locally in surroundings and other regions of country with questionable health facilities.

Current study aim to describe epidemiological, clinical and demographic features of patients confirmed to have COVID-19 in Balochistan detained at quarantine centers. It will provide an in depth review of COVID-19 patients of Balochistan, Pakistan

Methodology

A cross sectional descriptive study was conducted during months of March and April 2020 based on the secondary data available regarding COVID-19 positive patients from the health service records of Government of Balochistan quarantine centers and hospitals during this period. Data on total number of persons screened, tests performed, admissions, home isolation or need of intensive care was gathered through hospital records and quarantine center. Questionnaire was designed to collect the details about age, gender, address, point of entry, dates of sample and diagnosis, reports on repeated sampling and current status of the patient at the time of data collection. Data was collected through doctors working in the Taftan quarantine center established for COVID-19 response

Data was analyzed by using Excel and SPSS version 23. Mean and standard deviations are used for continuous variables like age and duration of stay (of recovered patients), while frequencies are used to describe age categories, point of entry and current status. Total and age category wise case fatality rate is calculated by keeping deaths in numerator and confirmed cases in denominator. To maintain the confidentiality, each patient was assigned a number and identity of patient was kept confidential

Proposal was approved by Ethical Review Committee of Foundation University Islamabad and data was approached after permission

Results

Mean age of respondents was 35.3±16.12 years with minimum age being 1 and maximum being 94 years. Data shows that out of available age data of 819 (out of 853) patients, 23 (2.6%) were 5 years or below, 24 (2.8%) were between 5 to 10 years and 68 (7.8%) were between 11 to 18 years. Table 1. Depicts Age, Sex, and Ethnic Distribution of Respondents

The data gathered about point of entry in the system

shows that initially they were religious pilgrims from Iran, which constitute almost all of 155 (18.17 %) reported cases in initial two weeks (starting from March 12 ,2010) from Taftan (Balochistan) quarantine center. Out of 155 pilgrims, 139 (89.6%) belonged to Balochistan, mostly Quetta i.e. 125 (80.6%). After another fortnight the community spread of virus was identified, and almost half the burden of disease was by contacts of COVID 19 confirmed positive patients, diagnosed through contact tracing. In more than a quarter, i.e. 286 (28.84%) patients, there was no risk of international or domestic travel or contact with positive person, they most probably resulted from silent transmission through asymptomatic patients. Table 2 summarizes the risk history of the COVID 19 positive patients. District wise distribution of COVID 19 positive cases is given in Fig 1.

Till May 1, 2020, follow up of these 853 cases shows that 16 (1.87% %) of them had died, and 837 (98.12 %) were alive, in which, 183 (21.5 %) had completely recovered.

Mean age of 16 deceased persons was 64.13 ± 12.5 years, minimum age being 34 and maximum 80 years. Among them 12 (75%) were male. All presented predominantly Pneumonia like symptoms. Only 4 (25%) of the deceased were without any co morbidity, 6 (37.5%) were having one co morbid and 6 (37.5%) were having more than two comorbid situations. 7 (43.75%) patients were diagnosed as hypertension or cardiovascular disease. Rest had either chronic kidney disease, diabetes mellitus, or respiratory problem. Overall case fatality rate was 1.87%, age specific mortality rate of current data is shown in Table 3

Table 1: Age, Sex, Ethnic Distribution of Respondents

	Frequency (n)	Percentage (%)
AGE		
1-10 Years	47	5.5%
11-19 Years	68	7.9%
20-29 Years	187	22%
30-49 Years	353	41.4%
50-59 Years	90	10.5%
60-69 Years	50	5.9%
70-79 Years	20	2.4%
80-89 Years	2	0.2%
90-99 Years	2	0.2%
Missing age data	34	4%
Total	853	100%

GENDER		
Males	652	76.4%
Females	201	23.6%
Total	853	100%
ETHNICITY		
Balochistan	810	94.9%
KPK*	17	1.9%
Punjab	8	0.9%
Sindh	11	1.4%
GB	3	0.35%
AJK**	1	0.11%
Missing Ethnicity Data	3	0.35%
Total	853	100%

(*KPK Khyber Pakhtunkhwa** AJK Azad Jammu Kashmir)

Table 1 : Risk History of COVID 19 Positive patients

S. No	Point of Entry	Frequency (n)	Percentage (%)
01	Pilgrims from Iran	155	18.2%
02	History of contact with confirmed COVID 19 case	417	49.9%
03	History of contact with suspect cases	3	0.35%
04	History of domestic Travel	14	1.64%
05	History of travel to Afghanistan	1	0.11%
06	History of Travel to Saudi Arabia	2	0.23%
07	History of religious congregation, Raiwind	2	0.23%
08	Admitted patients in Hospitals	13	1.5%
09	No relevant history of contact	246	28.8%
	Total	853	100%

Table 3: Age specific case fatality rate of COVID 19 in Balochistan

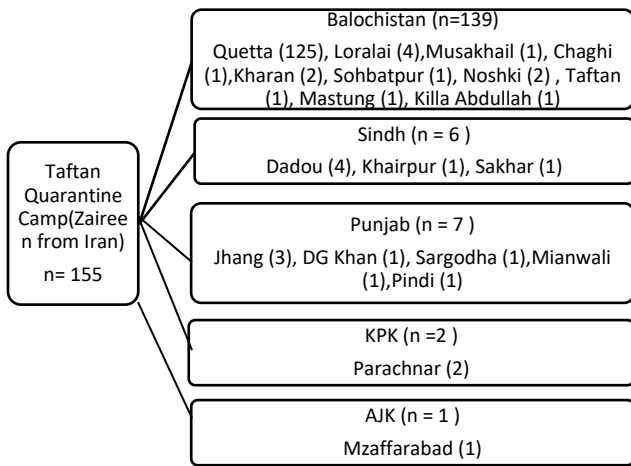| S. No	Age Group	Confirmed cases n (%)	Cumulative Percentage	Deaths n (%)	Age specific Case Fatality Rate
1.	1 – 19 Years	115 (14%)	115 (14%)	0	0%
2.	20- 29 Years	187(22.8%)	302 (36.8%)	0	0%
3.	30- 49 years	353 (43.1%)	655 (79.9%)	2	0.56%
5.	50-59 years	90 (10.9 %)	745 (90.8%)	2	2.2%
6.	60-69 years	50 (6.1%)	795 (96.9%)	6	12%
7.	70 & above	24(2.9 %)	819 (100%)	6	25%

Figure 1: District wise distribution of COVID 19 patients

Discussion

The results of current study have been discussed in light of clinical and epidemiological features of the outbreak in Balochistan, in comparison to national, regional and global literature available on the current pandemic of COVID-19, and, at the same time correlating it with the current demographic trends of Pakistan.

Taftan (Balochistan) can be rightly considered the Epicenter of outbreak in Pakistan. The center housed hundreds of apparently healthy people belonging to all regions of Pakistan and questionable health and civic facilities. The inmates of the center were later set to go back to their home towns. People in quarantine in Balochistan facilities have been gradually reduced following the Susceptible, Infected, Exposed, Recovered (SIER) epidemiologic model while these numbers have soared to 6422 in Sindh, 2779 in Punjab and 2267 in KPK.

According to latest statistics total confirmed cases in Pakistan, as for May, 27, 2020 are 61,222 with total death of 1250 giving total national case fatality ratio of 2.2 % (5).

An analysis of trends of COVID-19 cases by provinces for period Feb 25 till date(i.e., 1st week May 2020) reveals an urban rural differential whereby maximum 8800 tests/million population were reported to have been performed in ICT alone while that in Baluchistan remained around 1100/million population.

One of the Government COVID-19 reports reveals that till May 9th, out of total 270,025 tests conducted throughout Pakistan for screening suspected cases of COVID-19;(leaving aside GB and AJK) Balochistan health care services carried out 13774 of these which stands lowest among all other provinces. Punjab being most populous claims 121,994 tests. This is understandable as well since most of Balochistan population is scattered in rural settings and faces inaccessibility to public health services in the first place.

Transmissibility and severity are two of the various factors which determine the spread of disease in an outbreak. Morbidity and mortality depend on the amalgam of transmissibility and severity. The epidemiologists estimated the RO (the basic reproduction number to measure the transmissibility) value would be 2.2 for COVID-19(21). A swift person to person transmission occurred in this outbreak. . Current study shows that in initial two weeks of data collection 174 (20.7%) cases were imported (mainly pilgrims from Iran) and later the secondary cases were detected , in which 419 (49%) were identified on contact tracing and the rest were result of silent spread of disease from asymptomatic carriers. A notable feature of COVID -19 is number of people who are asymptomatic or with very mild symptom. In this study of 79%of all detected infections were asymptomatic, which got tested due to contact tracing, this highlights the need of extensive contact tracing and isolation in the community as repeatedly advised by WHO and CDC (22, 23).The problem with asymptomatic individual is that although the infected individual carries a huge number of virus still they are normal functionally, which leads to the spread of this infection. This is opposite to the SARS-CoV patients, the transmission of infection occurs when the patient becomes severely ill (24)

Initial data from Balochistan shows case fatality rate to be 1.87%, with 16 deaths among 853 confirmed cases, this is almost same as national case fatality rate of 2.1% (25) Although it is greater than CFR from seasonal flu, but it is much less than that of MERS and SARS (26) It is also lower than most of the countries (27, 28)

Due to slow recovery and deaths the severity and the case-fatality rate could be underestimated. Since the identification of the virus, the data obtained showed over 5.50million confirmed cases of COVID-19(29).

Higher mortality rate was reported in Algeria 15%, Italy 14.26%, Belgium 13.95%, Italy and UK 13% and Netherland 11.35%. While lower mortality rate countries are Qatar 0.17%, Singapore 0.2%, UAE 0.6%, and Australia 0.97%. A significant positive correlation r=0.9, n=56 was found between confirmed cases and deaths, which expected that disease spread increases the risk of death due to environmental factors, overloaded hospitals, un accessible medical services (30). At the time of data collection there were 16 deaths and 183 recoveries, making recovery ratio 11 times higher than death .This ratio is much higher in countries with extensive testing with more mild cases in denominator. Recovery versus deceased ratio show that recovery was 68, 59 and 35 times higher than deaths in Singapore, Qatar and Thailand respectively (24). The potential factors projected to be at play in the recovery might be better immunity of the population, good dietary habits or BCG vaccination in some countries. (31)

A very important finding of the study is no reported death in less than 30 years. It has very important implications given the demographic facts of Pakistan which has one of youngest population in the world. This finding, combined with the fact that although infections were detected in all age groups, but number of infected was fairly low (less than 10%) in subjects less than 15 years of age. This low infection rate together with negligible mortality can be a useful evidence for reopening the schools , provided it is combined with strict hygiene measures on return, so not to infect the older people on returning home. Numerous studies across the globe have reached the same conclusion (32)

 Among all 16 of recorded deaths, 12 (75%) of the fatalities were males and presented with extensive pneumonia accompanied by the compounding effect of comorbid conditions like cardio vascular disease, Diabetes or Asthma. International COVID-19 prevalence also displays that community acquired pneumonia cases were more in males, lower socio-economic group, being illiterate and residing in rural areas.(33) Presence of co morbidities is also identified risk factor of disease(33) This important finding has many implications, as burden on non-communicable disease is always increasing worldwide(34)and in developing countries. Pakistan also reports a high prevalence of all these co morbid situations with increase in the risk of death with COVID-19. With no treatment still identified and no vaccination in sight,

the best strategy is prevention and control of risk factor. Pakistan has already implemented its National NCD action plan (35). Its high time to focus on all aspects of prevention and control of NCDs with a new zest to prevent maximum deaths from these diseases as well as COVID-19

Conclusion
The epidemiologic behavior of COVID 19 infection introduced in Pakistani population from neighboring country has responded differently in community spread among different ethnic groups represented in different provinces of Pakistan. The case fatality rate among Baluch ethnic group were much lower than international COVID 19 case responses

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