Original Article

Measuring The Burden of Covid-19 In A Tertiary Care Hospital, Swat, Pakistan

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ABSTRACT

An unknown pathogen that caused an unknown respiratory disease in humans was discovered in China city of Wuhan, where it was given the name "new coronavirus. "or COVID-19. COVID-19 epidemiology and clinical features in Pakistan is the focus of this study. **Objective:** This study aims to evaluate the burden of COVID-19 in Swat, which might be helpful in preventing viral transmission in Pakistan. **Methods:** The current Retrospective study was carried out in a tertiary care hospital in district Swat Pakistan from April 2020 to June 2021. For the study, data were collected from local population who were suspicious or merely for screening reasons they visit to hospital at Swat Teaching Hospital, Swat, Pakistan. To find out the association between age group and COVID -19, a Chi-square test was used with a p-value less than 0.05. **Results**: A total of 11610 samples were analyzed in this study. The average patient's age was 40 years. Among total, there were 2230 (19%) cases were positive. The gender distributions of Covid-19, females were more affected 1128 (50.60%) than males 1102 (49.40%), but no significant difference in incidence rate. Adults accounted for COVID-19 active cases, 886 (40%) patients in the age range of 21-40 years, 686 (31%) in the age range of 41-60 years, 391 (17.5%), and 155 (7%), 45 (2%), and 40 (1.7%) patients in the age range of 61-80, 11-20, and 80-100 and 1-10 years, respectively. The research comprised a total of 27 older patients who met the locally recognized threshold of being elderly. A total of 40 (1.7%) of the juvenile patients were also infected. **Conclusion:** In this study patients in the age range of 21-40 years and compared to men females were more likely to be affected.

INTRODUCTION

Symptoms of pneumonia-like respiratory illness were found in a Chinese patient in December 2019 owing to an unknown reason [1]. From then on, the WHO recognized it as the sixth public health emergency globally on the 30thof January, 2020 [2].and proclaimed it as a pandemic disease in March of that year [3,4]. According to the WHO in 2020, this viral pneumonia was renamed COVID on February 11, 2020 [5]. Six individuals infected with the 2019 novel coronavirus (2019-nCoV) had bronchoalveolar lavage samples analyzed for metagenomics, and the newly discovered pathogen was renamed 2019-nCoV by the CDC [6]. Nearly 88% of the COVID-19's DNA matched that of a patient with the severe acute respiratory syndrome. Bat-derived coronaviruses bat-SL-CoVZXC21 and bat-SL-CoVZC45 were two of the SARS viruses [7]. ACE-2 receptor for this novel virus is the same as for SARS-CoV [8]. The seventh member of the coronavirus family: The new coronavirus [9]. Several epidemiological investigations indicated that on December 8, 2019, the COVID-19 was found in Wuhan (China) [10]. Later, it expanded to other countries, including Iran, Europe, India, the UK, and Pakistan, and later in March 11, 2020, was declared a

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pandemic [11]. This illness was initially discovered in Pakistan at the end of February back in 2020 [12]. The human-to-human transmission of COVID-19 is exceedingly infectious and occurs usually through aerosols from the infected person [13]. According to statistics given by the WHO on February 15, 2021, Pakistan has 564,077 cases reported, 12,333 fatalities, and 525,277 cases recovered as of that date. As mistakes in the coronavirus' RNA genome occur, the virus's RNA is prone to mutation genome quickly mutates. This disease is very infectious due to the fact that it is constantly evolving [14]. Analysis in India predicted that COVID-19 cases will continue to rise as transmission rates increased and seasonal occurrences occurred [15]. Several mathematical models imply that implementing preventative measures such as social distancing, isolation, and contact tracking may slow the transmission of the virus [16]. Humans may be asymptomatic or have the illness if they are not showing symptoms [17]. Not adequately managing asymptomatic individuals, as some have been found to be in Pakistan, might leave them serving as a carrier for others [18]. This was the first study in Swat, Pakistan's in which COVID-19 epidemiological and clinical features were examined. This research will help prevents the spread of the virus in Swat, Pakistan by showing how epidemiology and clinical characteristics is linked.

METHODS

The research was carried out at tertiary care hospital swat, Pakistan from April 2020 to June 2021. This study was done in conformity with the Declaration of Helsinki and submitted to the medical ethics review board of the Swat Teaching Hospital, Swat, Pakistan, which was evaluated and approved by the ethical review board. The research participants were divided into three age groups: children aged up to 9 years; teenagers aged 10–19 years; and adults aged >19 years (WHO, 2014). Data collection was carried out from April 2020 to June 2021 from local population who were suspicious or merely for screening reasons they visit to hospital. All the cases were screened for Covid-19 by Nasopharyngeal swab method. RNA extraction was done using a modified Charge Switch Forensic DNA Purification Kit (Invitrogen Life Technologies). Modification done were deactivation step (deactivate of SARS-COV-19 in the sample) for 30 minutes at 25 degrees centigrade (nasopharyngeal swabs in transport medium) with 800 μL L13 buffer adjusted to pH 7, 100% ethanol, dithiothreitol (DTT) at a final concentration of 2.5 mM (for preserving RNA integrity), β-mercaptoethanol (to preserve RNA integrity) and proteinase K (for cell and virus envelopes lysis). After the viral inactivation step the plate was loaded on the Hamilton Automation system for the automated RNA extraction. SPSS version 22.0 was used for statistical

analysis of the data. Interquartile ranges, ranges, percentages, median, and Frequency, were utilized to present data. U-test was employed for comparison across the groups. For association between different categorical groups chi-square test was performed.

RESULTS

A total of 11610 samples were analyzed in the current study, all participants belonging to swat. These patients had a median age of 40 yrs, with 21-40 yrs an interquartile range. Six-month-old is the youngest, while the oldest was one hundred years old. Table 1 and shows the gender distribution of Covid-19, with females 1128 (50.60%) being more afflicted than males 1102 (49.40%), but no significant difference in incidence rate. The relationship between gender and covid-19 distribution is seen in Table 1.

Gender	Covid_19		Total	p-value
	Detected	Not Detected		
Male	1102	5094	6196	
Female	1128	4286	5414	0.001
Total	2230	9380	11610	

Table 1: Gender wise Distribution of Covid-19

Adults accounted for most COVID-19 active cases, with 886 (40%) patients in the age range of 21-40 years, 686 (31%) in the age range of 41-60 years, 391 (17.5%), and 155 (7%), 45 (2%), and 40 (1.7%) patients in the age range of 61-80, 11-20, and 80-100 and 1-10 years, respectively (Table 2). The research comprised a total of 27 older patients who met the locally recognised threshold of being elderly. A total of 40 (1.7%) of the juvenile patients were also infected (Table. 03). The association between age group and novel corona virus, a Chi-square test was used with a p-value less than 0.05. (Table 2)

Gender	Covid_19		Total	p-value
	Detected	Not Detected		
1-10	40	788	828	
11-20	155	1546	1701	
21-40	886	3882	4768	
41-60	686	1980	2666	0.001
61-80	391	892	1283	
81-100	45	130	175	
Total	2203	9218	11421	

Table 2: Age wise detected cases of covid-19

DISCUSSION

According to the WHO, the COVID-19 has accumulated over 1.6 million cases as of April 11, 2020, killing approximately a hundred thousand fatalities [19]. According to recent statistics, the number of COVID-19 cases has surged and will reach more than eighty million worldwide in early 2021, by the WHO. This pandemic also affects Pakistan badly, with an expected total of approximately 0.5 million cases in first quarter of 2021 and a fatality rate of 1.7 per cent, according to the WHO [20]. It was found that the average

age of affected persons was 34 years. The illness had the greatest impact on those in the adult age range (19–59 years). It is estimated that almost 40% of the country's population is made up of adults, while 53% of the population is under the age of 19 according to the results of the country's 1998 census. 5.54 per cent of the overall population is above the age of 60, which amounts to 5.54 million people [21]. When compared to the male population (80.9 per cent), females (19.1 per cent) had a lower incidence of the illness than men (80.9 per cent). Our findings disagree with those of previous research conducted in China, which found that although the proportion of infected females was lower than that of infected males, the difference in the incidence level was not statistically significant [22]. When comparing male and female mice, recent research found that male rats were highly vulnerable to the CoV viruses than their female counterparts. However, there is no credible data to support the notion that sex has an impact on the susceptibility of an infection to occur. As a result, further research is needed to fully understand this behaviour. The original cause of the virus's dissemination may have been Westerners entering Pakistan from Iran, according to some speculation. However, the first instances of COVID-19 were discovered by 20th of February 2020, rather than late January 2020, when the illness epidemic in Iran was initially announced [23]. Consequently, the spread of the virus in Pakistan may be traced back to Iran in the first instance. It was the tourists from Spain who were responsible for the greatest number of infected cases. There is already compelling evidence that the sickness may be transmitted from person to person. In addition, our research reveals that persons who have had greater social contacts are at a peak of risk of contracting illness. Additionally, religious gatherings that were conducted in March contributed to a rise in the spread of infection. Consequently, social distance must be fostered in order to prevent the illness from spreading exponentially further [24]. An unusually large number of healthcare professionals contracted the coronavirus illness during the current coronavirus epidemic in China. The condition was found to impact 3.8 percent of healthcare professionals in China, according to a research conducted in that country [25]. Another article detailed the deaths of twenty-three healthcare professionals and two doctors in China, calling to light the dangers that these health professionals face on a regular basis in the course of their employment. However, when compared to previously published research, the percentage in our study is much greater. Health care personnel' inability to shield themselves from disease transmission, as well as their extended exposure to patients and insufficient awareness of disease

transmission, may have contributed to the rise in such instances [26]. Increased knowledge of self-protection, appropriate supply of personal protective equipment, and a fast reaction may all contribute to a reduction in the vulnerability of healthcare workers to infection [27]. Patient reports revealed that fever, weariness, and abdominal pain were the most commonly reported signs and symptoms by participants. 4.12 percent of the whole patient group, on the other hand, remained asymptomatic throughout. This pattern is similar to that seen in the previous research [28]. It was surprising to find out that 6.70 percent of the patients had had a reduction in their sense of smell and taste. Flu, nausea, cold, sore throat, anorexia, disorientation, myalgia, were also recorded, among other symptoms of the virus [29]. When the COVID-19 epidemic first began in Pakistan, paracetamol, chloroquine, and cetirizine were the most often given medications. Paracetamol, chloroquine, and cetirizine were the next most frequently recommended medications. However, the available evidence is inadequate to determine whether or not drugs have an impact on the outcome of the illness. Paracetamol was the most often recommended medication because it is the safest therapy for controlling COVID-19 symptoms in the absence of ibuprofen, and it was followed by chloroquine, which is being hailed as a "wonder drug" [30]. It is possible that COVID-19 has a connection to the human population as well as animals. There have also been reports of positive SARS-CoV-2 tests in zoo animals. Under experimental settings, chicken and duck eggs were not impacted by COVID-19 in chicken and ducks [31]. The interspecies transmission of COVID-19 was discovered very recently and will need to be handled when several research projects are completed. Various experimental studies have shown that pets may also be vulnerable to SARS-CoV-2 transmitted from humans [32]. The current research has several limitations, including the fact that 53.61 percent of the sample patients were still in the hospital, and it was not possible to determine whether or not they had recovered.

CONCLUSION

the information gathered was not equally spread around the nation. Furthermore, because of the restricted number of tests done by the hospitals, it was not possible to explore other clinical markers or indicators such as CBC, chest X-rays, CT scans. It had been impossible for us to evaluate further criteria, such as the virus's incubation time, due to the lack of available information, such as the date of commencement of symptoms. The present research is one of the first to provide an epidemiological picture of COVID-19 in Pakistan, and it is one of the most comprehensive. Given its low-middle-income status, Pakistan faces a wide

range of issues, ranging from insufficient healthcare infrastructure to terrible socioeconomic situations. Our research may aid in the identification and development of a response that may assist to mitigate the fast onset of illness.

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