

COVID19: Clinical Presentation and Diversity Related to Age and Gender

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Abstract

Objective: To determine frequency of different clinical symptoms in patients of Covid19 infection and to explore effect of age and gender on symptoms distribution and behavioral risk of exposure.

Methods: A cross sectional observational study was conducted at Department of Medicine, Services Institute of Medical Sciences. After informed consent, patients confirmed to have Covid19 infection were interviewed for presenting symptoms, co-morbid illnesses and risk factors for exposure to corona virus. Data was analyzed using SPSS® 22 using chi square and t test.

Results: Total of 114 patients with mean age of 55.03 (\pm 11.9) and male to female ratio of 1.65:1 (71/43) were included. Fever 84 (73.7%), shortness of breath 93 (81.6%) and cough in 76 (66.7%) patients were major symptoms. Exposure to Covid19 positive patients was present in 12 (10.5%) patients, 74 (64.9%) continued their outdoor occupational work and only 68 (59.4%) were wearing mask. We identified nausea (p value 0.002, OR 0.30 95% CI 0.13-0.69) and loss of consciousness (p value 0.002, OR 0.13 95% CI 0.03-0.59) as less common symptoms in males as compared to females while cough was more common in males (p value 0.029 OR 1.36 95% CI 1.003-1.85). No difference in clinical presentation was noted in different age groups.

Conclusion: Fever, dyspnea and cough are major presenting complaints of Covid-19 infection. Cough is more common and nausea and unconsciousness are less in male patients while clinical symptoms does not vary with age.

Keywords: Age, Covid19 infection, Gender, Symptoms

Introduction

Novel Corona virus infection (SARS-COV-2) has changed the norms of life. We are no more living the way we used to. It is largely due to its rapid trans-mission and high infectivity. Despite having reported mortality varying between 0.1-10% in different countries,^{1,2} it has forced people to stay away from each other, to abandon public

gatherings and social interaction and cancellation of holidays, excursions and sports.

Despite having spread to each and every community over last six months and having affected more than 19 million people with more than half a million deaths,³ we still have no remedy for this illness. Only option for disease control is prevention and over these months we have learned that wearing mask in public, social distancing and frequent hand washing are the tools which have shown benefit in this fight with this pandemic.⁴

However effective application of these measures need public awareness, development of standard operating procedures (SOPs) and implementation in community. Especially now, when people are getting fed up with restrictions and economic cost of lock-downs is overshadowing disease morbidity and mortality, we need to open up essential services and businesses with strict application of SOPs.

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Relaxa-tion of restrictions on public movement without following SOPs will allow disease to grow exponen-tially with collapse of health services. Public aware-ness and self-responsibility for following precautions is only way forward.⁵

Effective handling of pandemic of this proportion needs comprehensive understanding of its patho-physiology, routs of transmission, diversity in its clinical presentation and risk factors contributing to its severity. Initially it was considered as a variant of flu virus resulting in delayed implementation of preventive measures leading to spread of disease globally. However, knowledge has evolved over last six months and each region and country is focusing on understanding interaction of this virus with their community to curb its spread.

Pakistan documented its first case of corona virus infection in late February 2020 with first death in mid of March. Despite enforcing restrictions and lock-downs, it grew exponentially during months of May and June due to unavoidable need for relaxation in lockdowns. As the pandemic is evolving, there is urgent need to observe and document clinical behavior of this illness in our population. We planned an observational study to explore modes of clinical presentation of Covid19 patients being admitted in hospital and to determine effect of patient's gender and age on symptoms of disease.

Methods

This cross sectional study was carried out at Department of Medicine, Services Institute of Medical Sciences (SIMS) after approval of Ethical Review Board. Patients included were suspected or confirmed cases of Covid-19 patients being admitted at Services Hospital via Accident and Emergency or Outpatient clinic. Informed consent was taken before inclusion in study. Definition for suspected and confirmed case was according to clinical management guidelines for Covid-19 infection as published by Ministry of National Health Services, regulations and coordination Government of Pakistan. Only patients confirmed to have Covid-19

Demographic data of patients including their age, gender were recorded. Detailed clinical history was explored for symptoms related to patient's illness. Patients were interviewed for presence of fever, chest

pain, dyspnea, cough, abdominal pain, vomiting, jaundice, altered sensorium etc. Duration of these symptoms along with severity were also noted. Co-morbid illness like diabetes mellitus, hypertension, ischemic heart disease, chronic liver disease and chronic kidney disease were also noted. Risk factors for virus exposure like contact with positive patient, continuing occupational work during lockdown, intercity or foreign travel and wearing mask or not were also inquired from patients included in study. Data was collected on pre-designed proforma.

Statistical Analysis

Data will be entered in SPSS 22®. Numerical variables were described as mean \pm standard deviation (SD) while nominal and categorical variables were given as percentages. Patients with age 50 or below were compared with those above 50 years of age using student's t test for numerical variables and chi square for nominal or categorical variables. We also compared male and female patients for diversity in clinical presentation and risk factors for being exposed to covid19 infection. P value of less than 0.05 was considered significant. For variables with significant association, we determined Odds ratio (OR) with 95% confidence interval (CI).

Results

Total of 114 patients with confirmed Covid-19 infection were included in study. Mean age of study patients was 55.03 (11.9) with male to female ratio of 1.65:1 (71/43). All patients were symptomatic at time of admission to hospital. Mean duration of symptoms was 7.5 (\pm 4.6) days before coming to hospital with 80 (70.2%) patients were symptomatic for 5 days or more.

Fever 84 (73.7%) along with shortness of breath 93 (81.6%) were the most common presenting complaints. Fever was high grade in 25 (21.9%) patients while remaining had low grade fever. Cough was present in 76 (66.7%) patients and it was dry in majority of patients with sputum in 23(20.2%) patients only. Sore throat was complained by 32 (28.1%) patients, 54(47.4%) had fatigue and myalgias and 15(13.2%) reported chest pain. Vomiting was present in 14 (12.3%) patients, 4 (3.5%) had abdominal pain and 17 (14.9%) patients had diarrhea at time of admission. Altered sensorium was present

in 11 (9.6%) patients at time of presenting in hospital.

Diabetes mellitus was present in 51 (44.7%) patients, 48 (42.1%) were hypertensive and 13 (11.4%) patients had history of ischemic heart disease. Positive history of contact with Covid19 patient was present in 12 (10.5%) patients, 14 (12.3%) patients traveled to other city during prior 2 weeks, 74 (64.9%) were continuing their occupational work and only 68 (59.4%) were wearing mask while being out of home. We compared patients of 50 or less years of age with those above 50 years for clinical symptoms and behavioral risk as shown in table-I and no significant difference was noted between these age groups. However on comparing male and females for these variables as shown in table-II, we identified nausea (p value 0.002, OR 0.30 95% CI 0.13-0.69) and loss of consciousness (p value 0.002, OR 0.13 95% CI 0.03-0.59) less common symptoms in males as compared to females while cough was more common in males (p value 0.029 OR 1.36 95% CI 1.003-1.85). Males are more likely to continue working outdoor despite restrictions than females (p value 0.005, OR 1.52 95% CI 1.09-2.13).

Table 1: Correlation of Age Groups and Presenting Symptoms and High risk behaviors in Covid-19 Infection

Variables	Age > 50 years (n-68)	Age ≤ 50 years (n-46)	P value
Fever	52	32	0.61
Cough	47	29	0.60
Dyspnea	55	38	0.52
Sore throat	20	12	0.78
Vomiting	8	6	0.78
Diarrhea	9	8	0.48
Altered sensorium	7	4	0.82
Chest tightness	7	8	0.23
H/O Contact with covid19 patient	6	6	0.43
Outdoor working	45	29	0.93
Mask in outdoor	37	31	0.10

Discussion

Clinical behavior of novel corona virus resulting in Covid-19 infection has mesmerized whole medical fraternity over last 6 months. Astonishing speed of dissemination of virus in communities across the world has not given enough time to scientist to develop an understanding of this fatal illness. Knowledge regarding its behavior is still evolving when around

Table 2: Correlation of Gender and presenting Symptoms and High risk Behaviors in Covid-19 Infection

Variables	Male (n-71)	Female (n-43)	P value
Fever	56	28	0.10
Cough	53	23	0.029
Dyspnea	61	32	0.12
Sore throat	21	11	0.645
Nausea	7	14	0.002
Vomiting	6	8	0.10
Diarrhea	8	9	0.16
Altered sensorium	2	9	0.002
Chest tightness	7	8	0.18
Outdoor working	53	21	0.005
Mask in outdoor	42	26	0.89

20 million people are already infected world-over.⁶

We have explored pattern of clinical symptoms in covid-19 patients of our community presenting in a tertiary care hospital. This information will facilitate formulation of screening and preventive strategies for our population. Predominant symptoms in our patients are fever, cough and shortness of breath. In a study of 262 patients in Beijing being admitted in emergency medical service, 82.1% had fever, 45.8% had cough, 26.3% had fatigue.⁷ In another study of 276 patients from Zengdu District, Hubei Province, fever was seen in 227 (82.2%) patients and cough in 218 (78%) patients.⁸

If we follow patients in other parts of world, similar symptom pattern is being observed. In a study of 393 patients from New York, 79.4% had cough, 77.1% had fever, 56.6% experienced dyspnea, diarrhea was observed in 23.7% patients while 19.1% had nausea and vomiting.⁹

We noted diarrhea in 17 (14.9%) of our patients. In a meta-analysis published last month, diarrhea was present in 10.4% patients of Covid-19 infection although different studies have identified it prevalence to be between 5-50%.¹⁰ Sensorium of 11 (9.6 %) patients was altered at time of hospital admission in our study. Recent research has shown that SARS-COV-2 virus can enter brain via hematogenous or olfactory rout and can result in neurological manifestations like agitation, delirium or even coma. It can also result in encephalitis.¹¹

Despite restrictions on public movement and lock downs majority of our patients 74 (64.9%) were

continuing with their outdoor occupational work and only 68 (59.4%) patients were wearing mask while being outside home. In a cross sectional survey of 4850 Malaysian residents, only 51.2% were wearing face mask in late march despite exponential community spread of illness.¹²

We have observed nausea and altered sensorium significantly more in females while cough is more prevalent in men whereas clinical symptoms profile remains same across different age groups. Many recent studies have confirmed that disease behaves differently in women being less susceptible to infection and even disease mortality is remarkably less in women. It is due to different innate immune response, steroid hormones and factors related to sex chromosomes.¹³ We have noted difference in clinical manifestation of illness as well.

Our data will enable us to develop better understanding of disease in our population. Community programs to control this epidemics can only be successful if these are based on robust data regarding epidemiology of disease in indigenous population. Further large size studies are needed to guide our national strategy to control this pandemic.

Conclusion

Fever, dyspnea and cough are major presenting complaints in patients of Covid-19. Cough is more common in men and nausea and unconsciousness are more prevalent in women while pattern of clinical symptoms does not change with age.

Author's Contribution:

SS: Conception and Design Analysis and Interpretation, drafting of article, approval of the version, agreement to be accountable for all respect.

HM, UW, YM, MNA: Acquisition of data, revising the manuscript, approval of the version, agreement to be accountable for all aspect

MAN: Conception and design, revising manuscript critically, final approval of the version and agreement to be accountable.

AR, BR, M, MA, DR: Data Collection

Conflict of Interest: None

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