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ORIGINAL ARTICLE

Correlation between atopy and Covid-19: A cross sectional study

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ABSTRACT:

The whole world is facing one of the biggest health related disasters of the century. As a novel disease, Covid-19 has so many parameters yet to explore.

Objectives: To explore any correlation between atopy and Covid-19 among residents of Gujrat and Kharian, Punjab, Pakistan.

Study Design: Cross-sectional study.

Methodology: This study with enrolled subjects (n=206) was carried out after ethical review committee's (ERC) approval at Life Diabetes Centre, Gujrat and CMH Kharian Medical College (CKMC), over a period of 3 months, Kharian-Pakistan. Both male and female medical subjects were enrolled.

Statistical analysis: Data was analyzed by SPSS software, version 17. Parameters like gender, allergy and treatment taken were presented as frequency and percentage. Chi square was applied to see the correlation with p-value <0.05 as significant.

Results: Total 206 patients were randomly selected, 89 male and 117 females. Among 206, only 13 patients had allergy from different allergens. Only 2 patients required hospitalization and injectable treatment.

Conclusion: We concluded that there is strong affiliation between atopy and Covid-19 presentations.

Key Words: Covid-19**,** Atopy, Treatment and Gender.

INTRODUCTION

The Covid-19 pandemic has wreaked havoc throughout the world, with 150 million cases to date and over 3 million lives claimed worldwide.[1] In Pakistan, over 800 thousand cases and almost 17000 deaths have been reported since March, 2020.[2] In the wake of the first wave of the pandemic, the government of Pakistan imposed an almost six month long lockdown from mid-March to mid-September 2020 wherein all public gatherings were prohibited, offices and educational institutes were shifted to remote work and online education and commercial activity was reduced to the bare minimum. These measures proved to be a double edged sword, as on one hand, they were beneficial in limiting the spread of the disease, while on the other, they had a veritable adverse impact on psychological health in general and amongst medical students in particular.[3]

The novel coronavirus SARS-CoV-2 (COVID-19) started as an epidemic in Wuhan, China, in December 2019 and rapidly progressed to pandemic status by March 2020.[4] It has been known to cause a wide range of complications, the most notable of which is the acute respiratory distress syndrome secondary to severe pneumonia.[5] In the earlier stages of the pandemic, several studies identified risk factors and comorbidities for developing a more severe form of Covid-19 including, Diabetes Mellitus, obesity , smoking, advanced age, cardiovascular disease and allergies.[6] Respiratory allergies, particularly allergic Asthma, was very rightfully considered to be an expected risk factor for a disease that further compromised lung function. It was, however, later observed that atopy was emerging as a protective factor rather than a risk for more severe Covid-19.[7]

With the rapid rate of industrialization, especially in the Northern part of the Punjab province in Pakistan, the incidence of atopy in general and allergic Asthma in particular is on the rise. With an increasing part of the population suffering from allergies in one form or the other, further exploration of such conditions becomes even more justified.[8]

Research involving Covid-19 is constantly, and very rapidly evolving and this disease and the mechanisms it relies on are still not fully understood and established. With such a novel and yet quite ambiguous pathogenesis of the disease itself as well as its myriad sequelae, further, extensive and region based research regarding Covid-19 and its associations is the need of the hour. In that vein, this study aimed to explore the correlation between atopy and Covid-19 among residents of Gujrat and Kharian, Punjab, Pakistan.

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Methodology: This study with enrolled subjects (n=206) was carried out after ethical review committee's (ERC) approval at Life Diabetes Centre, Gujrat and CMH Kharian Medical College (CKMC), over a period of 3 months, Kharian-Pakistan. Both male and female medical subjects were enrolled. Covid-19 negative cases were excluded from study.

Statistical Analysis: Data was analyzed by SPSS software, version 17. Parameters like gender, allergy and

treatment taken were presented as frequency and percentage. Chi square was applied to see the correlation with p-value <0.05 as significant.

RESULTS

Distribution of parameters like gender, allergy and treatment given to patients in present study was presented as frequency and percentage in table-1.

Table-1: General features of enrolled subjects

Variables	Categories	Frequency	Percentage
Gender	Males	89	43.2%
	Females	117	56.8%
	Total	206	100%
Allergy	Yes	13	6.3%
	No	193	93.7%
Treatment taken (Allergy-Yes)	Injectable with oral medicines	2	15.3%
	No Treatment	3	23%
	Oral Treatment	8	61.5%
	Oxygen with Injectable & oral medicines	0	Zero percent

There is no association between gender & different treatments taken for COVID-19 while having any type of allergy as P-values are 0.674, 0.522 & 0.968 as shown in table-2.

Table-2: Cross-Tabulation with Chi-Square

Treatment taken	Gender	Allergy		*P-value*
		Yes	No	
Injectable with oral medicines	Males	1	7	0.674
	Females	1	13	
No Treatment	Males	2	46	0.522
	Females	1	50	
Oral Treatment	Males	3	26	0.968
	Females	5	42	
Oxygen with Injectable & oral medicines	Males	0	4	
	Females	0	5	

DISCUSSION

This study was conducted in Life Diabetes Centre, Gujrat with collaboration of CMH Kharian medical college to rule out weather is there any correlation between atopy and Covid-19. Particular focus was on the presence of atopy in patient suffering from covid-19.

As novel disease covid-19 is hitting badly almost all nations of the world without limitations of the socioeconomic status, race, gender, age and boundaries. Unfortunately, due to limited resources and research, this major health issue remained unnoticed. Thus, we examined the correlation between atopy and Covid-19.

Both males and female patients of all age groups were recruited in our work as in other previous studies. In this study total 206 patient participated out of which 89 (43.2%) were male and 117(56.8%) were female as depicted by table-1. Paradoxically, in another previous study conducted in South Korea between January 1, 2020, and May 15, 2020, were analyzed. The association of SARS-CoV-2 test positivity and allergic diseases in the entire cohort (n=5219,959).[9]

In this study, total number of patients found allergic to different items were 13. Only 2 out of 13 patients required hospitalization. That shows strong affiliations of atopy with covid 19 in prevention of covid-19 complication, same as described in previous study that atopic status may protect from the development of the fetal complication, conducted in Spain.[7]

Components such as hereditary inclination to a Th2-oriented resistant reaction might offer assistance to maintain a strategic distance from the cytokine storm and treatment with breathed in corticosteroids might have played a part in our perception of a milder infection among atopic patients, especially within the light of the later finding of viable dexamethasone assurance against severe pneumonia. In any case, all our patients, both atopic and nonatopic experienced systemic corticosteroid treatment amid their healing center remain, and most atopic patients were not asthmatic and thus did not utilize breathed in corticosteroids some time recently their affirmation.[6,7]

Limitations: Our study had limitations like financial constraints, lack of resources and small sample size.

Conclusion: We concluded that there is strong affiliation between atopy and Covid-19 presentations. However, there was limitation due to a smaller number of allergic patients. As a novel disease this portion of study need to explore more.

Authors' Contribution

MZA & AFA: Conception and design of work
MUR & SAAG: Collecting and analyzing the data
IR & AA: Drafting the manuscript
MR & SS: Collecting and analyzing the data
SNH & TL: Drafting and revising the manuscript for intellectual content.

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Conflict of Interest: None to declare

Financial Disclosure: None

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