



ORIGINAL RESEARCH PAPER

General Medicine

COVID-19 - ONE OF THE LEADING CAUSE TO DEARRANGED BLOOD SUGAR VALUES

KEY WORDS:

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INTRODUCTION-

The world is amidst a pandemic with the emergence of SARS-COV-2 virus which is one of the greatest public health challenges of the twenty first century. It is the first human corona virus to elicit a massive public health response and had a major economic impact in several countries in Asia.

The disease severity is more in elderly and in patients with underlying conditions diabetes being one of the major predisposing condition which shares a bidirectional relationship. Currently diabetes is the third most common comorbidity in COVID-19 patients and increases risk of ICU admission.^[1,2]

A history of diabetes was associated with 22.5% of COVID-19 ICU admissions in one case series^[3] and a mortality rate up to 16% among people with diabetes and without other comorbidities^[4]. COVID-19 not only have the ability to worsen existing diabetes but may also trigger new-onset diabetes. Death in covid patients due to dearrange blood sugar values has been reported between 20 to 30%.

The mechanism is still unclear. Through previous studies mentioned Severe acute Respiratory syndrome corona virus 2 (SARS-COV-2), virus that causes COVID-19, binds to angiotensin converting enzyme 2 (ACE 2) receptors, which are expressed in key metabolic organs and tissues, including pancreatic beta cells, adipose tissue, small intestine and kidneys. Thus it may cause disturbance in glucose metabolism. increased incidence of fasting hyperglycemia and acute onset diabetes have been reported among COVID 19 positive patients.

MATERIALS AND METHODS

Sample size-100

Inclusion Criterion: all Covid19 positive patients

Exclusion Criterion: previously diagnosed diabetes patients

Type of study-cross sectional study

The study was initiated after obtaining the approval from institutional ethics committee of the institution. Only after written informed consent (appendix 1) was obtained from all potential participants they were recruited. A detailed explanation was given to all participating respondents regarding the study and their contribution to it.

The COVID positive patients admitted in the flu section of CSSH were included in the study. An online structured questionnaire was used to assess the above mentioned objectives. After obtaining the approval from institutional ethics committee of the institution the questionnaire was administered to those respond to give informed consent.

STATISTICAL ANALYSIS

Data so collected was tabulated in excel sheet under the guidance of statistician. The mean and standard deviations of measurement used for stastical analysis by SPSS version 21 and chi square test and test of proportion will be used.

RESULTS:-

The study comprised of 100 subjects, out of which 67 were males and 33 females.

out of which 19.40 %(13) COVID positive males developed diabetes after COVID infection and 15.15%(5) COVID positive females developed diabetes after COVID infection with statistically significant difference as p<0.05.

Table 1: New onset of diabetes among the study population

New Onset Diabetes	Male		Female		Total	
	N	%	N	%	N	%
Present	13	19.40	5	15.15	18	18
Absent	54	80.60	28	84.85	82	82
Total	67	100	33	100	100	100
Chi Square	0.27					
p value	0.60					

DISCUSSION-

In this study, we found that COVID 19 can also lead to dearranged blood sugars. Our findings highlight the bidirectional relationship between COVID 19 and diabetes.

Diabetes mellitus is a metabolic disease that results in high blood sugar due to decreased production of insulin(type I diabetes or resistance to insulin(type 2 diabetes) or both (hormone which moves blood sugar from blood into cell for storage and utilization). the symptoms of hyperglycemia includes polyuria, polydipsia, polyphagia, frequent superficial infections (vaginitis, fungal skin infections), slow healing of skin lesions and minor trauma, fatigue, weakness, blurry vision

Criteria for derranged blood sugars :

- a) blood glucose concentration >11.0mmol/l (200mg/dl) or
- b) Fasting plasma glucose >=7.0mmol/l (126 mg/dl) or
- c) 2 hour plasma glucose >=11.0mmol/l (200 mg/dl) during an oral glucose tolerance test.

Francesco Rubino^[5] et al and paul Zimmet et al concluded Between 20 and 30% of patients who died with COVID-19 have been reported to have diabetes in their study

Pavan kumar Reddy et al^[6] in his study diganosed 30 year old male suffering from new onset DKA alongwith COVID pneumonia who previously had no oher comorbidities

CONCLUSION-

It can be concluded from the results that COVID-19 can also lead to dearranged blood sugar. We do not know yet the magnitude of recent onset dearrangement of blood sugar values in COVID-19 will persist or resolve after infection, or COVID increases risk of future diabetes. Although the reason for this interplay requires further investigation.

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