



"STUDY OF FREQUENCY OF NEWLY DIAGNOSED DIABETES IN PATIENTS RECOVERING FROM SARS CoV-2 INFECTION ATTENDING FOLLOW UP OPD IN A TERTIARY CARE CENTRE"

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ABSTRACT

SARS-CoV-2, the virus that causes the COVID-19 infection, has been linked to all sorts of long-term health issues. Diabetes mellitus has a bidirectional relationship with COVID-19. Poorly controlled diabetes increases the severity of COVID-19 and is associated with increased morbidity and mortality. COVID-19 pandemic has also resulted in poor control of diabetes, progression of prediabetes to diabetes, increase in number of new onset diabetes.

KEYWORDS :

INTRODUCTION

COVID-19, which was first reported to the WHO Country Office in China on December 31, 2019, has since wreaked havoc over the world, killing millions of lives and having an irreparable impact on many more. A Public Health Emergency of International Concern was later declared regarding the pandemic (PHEIC). On March 11, 2020, WHO declare it as a pandemic. The primary determinant of coronavirus tropism is spike glycoprotein. By interacting with angiotensin-converting enzyme 2 (ACE2), a membrane-bound receptor expressed throughout the cells of the body.

The human pancreas, which contains the viral binding site, angiotensin-converting enzyme 2 receptor, ACE-2, in islet cells including beta -cells, is one of the targets of the multi organ affecting SARS-CoV-2.

This viral attachment to beta cells may start an inflammatory process that damages cells and impairs insulin production. Alternately, the etiology of insulin resistance and type 2 diabetes may be triggered by the production of proinflammatory cytokines and acute phase reactants during the course of the viral disease, causing inflammation and damage to the beta cells directly.

Table No.: Incidence of Diabetes among cases and controls

	Case		Control		Total	
	Number (n=200)	Percent (%)	Number (n=200)	Percent (%)	Number (n=400)	Percent (%)
FBS						
Normal < 110	129	64.5%	145	72.5%	274	68.5%
Pre Diabetic (110 - 125)	44	22.0%	35	17.5%	79	19.8%
Diabetic (> 125)	27	13.5%	20	10.0%	47	11.8%
OGTT VALUE (2 Hours)						
Normal (< 140)	108	54.0%	152	76.0%	260	65.0%
Pre Diabetic (140 - 199)	55	27.5%	25	12.5%	80	20.0%
Diabetic (> 199)	37	18.5%	23	11.5%	60	15.0%
HbA1c						
Normal (< 5.7)	111	55.5%	144	72.0%	255	63.8%
Pre Diabetic (5.7 - 6.4)	58	29.0%	39	19.5%	97	24.3%
Diabetic (> 6.4)	31	15.5%	17	8.5%	48	12.0%

Figure – 1 Incidence of diabetes and prediabetes

Table No: Comparison of mean value of parameters according to the Study Group

	Case (n=200)	Control (n=200)	Mean ± S.E. of Difference	95% C.I. of Difference		t-statistic	p-value
				Lower	Upper		
FBS	105.1 ± 33.1	99.5 ± 26.5	5.6 ± 3	-0.29	11.51	1.869	0.062
OGTT Value	166.4 ± 68.2	143.6 ± 56.3	22.8 ± 6.3	10.48	35.07	3.642	<0.0001*
Hba1c	6.6 ± 2.7	6.1 ± 2.4	0.5 ± 0.3	-0.03	0.97	1.837	0.067

*p<0.05; statistically significant

Figure-2 Comparison of mean value of parameters

OVERALL INCIDENCE OF DIABETES IN CASES	15.8%
OVERALL INCIDENCE OF DIABETES IN CONTROLS	10%
OVERALL INCIDENCE OF PRE-DIABETES IN CASES	31%
OVERALL INCIDENCE OF PRE-DIABETES IN CONTROLS	20.6%

Figure - 3 Table Showing Overall Incidence And Comparative Table Between Cases And Controls

Case Series

Total study participants were 400(200 cases and 200 controls). Cases and controls were matched for age and sex to avoid confounding. cases are patient who recovered from COVID-19 infection, while controls are age and sex matched patients who were not exposed to COVID-19 infection. cases and controls were subjected to following tests :HbA1c, FBS, 2 hr OGTT value and based on that cases and controls are classified into prediabetic and diabetic. (BASED ON ICMR GUIDELINES)

CONCLUSIONS

In our study on the basis of HbA1c, OGTT and FBS value, diabetic and pre diabetic were significantly higher in cases groups as compared to control group. overall incidence of diabetes in cases vs controls (15.8% and 10% respectively),

overall incidence of prediabetes in cases and controls(31% and 20.6% respectively)We recommend that a patient with COVID-19 infection have their blood glucose levels constantly checked for the emergence of full-blown diabetes. Newly diagnosed diabetes should be handled early and effectively.

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