COVID-19 Is Associated with Increased Risks for Development of Esophago-gastrointestinal Motility Disorders

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INTRODUCTION

- Patients with COVID-19 infection can present with various gastrointestinal symptoms.
- COVID-19 can affect smooth muscle, peripheral and central nervous system, which may lead to brain-gut dysfunction, a major pathophysiologic mechanism for esophago-gastrointestinal motility disorders (EGMD).
- It is unclear if COVID-19 will increase the risk for patients to develop EGMD.

AIM

- To determine the incidence of common EGMD in patients after testing positive for COVID-19, and to compare the incidence of EGMD in non-COVID patients

METHOD

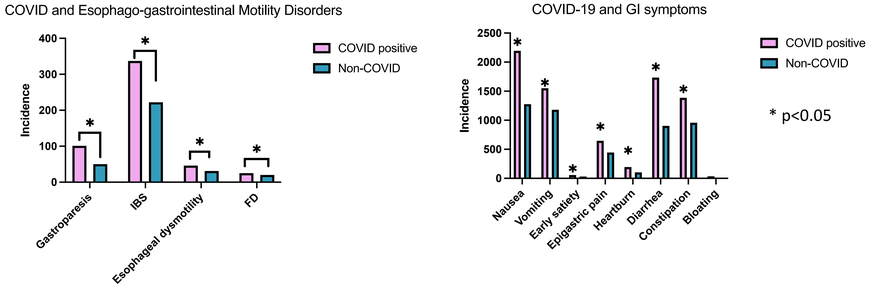
- A retrospective cohort analysis was performed using IBM Explorys, which contained deidentified healthcare information from over 64 million patients across the US.
- COVID-19 cohort is consisted of patients with a positive COVID test or a diagnosis of coronavirus infection from 2020-2022.
- The control group consists of patients who did not have a positive COVID test or documented coronavirus infection from 2020-2022.
- We collected diagnosis of gastroparesis (GP), irritable bowel syndrome (IBS), esophageal dysmotility, functional dyspepsia (FD) and common gastrointestinal symptoms that happen after COVID-19 was diagnosed; Same information was collected in the non-COVID group.
- Incidence rate per 100000 person-year was calculated. Odds ratios (OR) with 95% confidence interval were used to compare the cohorts.

RESULTS

- There was a total of 287,950 patients in the COVID-19 positive cohort and 18,346,510 patients in the non-COVID cohort.
- The incidence of EGMD was higher in COVID-19 positive group compared with the non-COVID group, including GP (OR 1.90-2.17), IBS (OR 1.47-1.58), esophageal dysmotility (OR 1.38-1.68) and FD (OR 1.09-1.42).
- COVID positive cohort had a higher incidence of new onset gastrointestinal symptoms, including nausea (OR 1.75-1.80), vomiting (OR 1.31-1.35), early satiety (OR 1.75-2.10), epigastric pain (OR 1.42-1.50), heartburn (OR 1.79-1.97), diarrhea (OR 1.94-2.00), constipation (OR 1.44-1.49) and bloating (OR 5.34-6.77).

Table 1 GI symptoms and motility disorders in patients with COVID-19

		COVID positive (N=287950)		COVID Negative (N=18346510)			
		N	Incidence/100000 person year	N	Incidence/100000 person year	OR	P
FGIMD	Gastroparesis	870	101	27380	50	1.9-2.17	< 0.0001
	IBS	2910	337	122010	222	1.47-1.58	< 0.0001
	Esophageal dysmotility	400	46	16790	31	1.38-1.68	< 0.0001
	FD	220	25	11270	20	1.09-1.42	0.0013
Symptoms	Nausea	18960	2195	701870	1275	1.75-1.8	< 0.0001
	Vomiting	13390	1550	649310	1180	1.31-1.35	< 0.0001
	Early satiety	500	58	16630	30	1.75-2.10	< 0.0001
	Epigastric pain	5580	646	245200	445	1.42-1.50	< 0.0001
	Heartburn	1680	194	57190	104	1.79-1.97	< 0.0001
	Diarrhea	14990	1735	497340	904	1.94-2.00	< 0.0001
	Constipation	11970	1386	527460	958	1.44-1.49	< 0.0001
	Bloating	300	35	3180	6	5.34-6.77	< 0.0001



CONCLUSIONS

- COVID-19 positive patients are associated with a higher incidence of newly diagnosed EGMD and various gastrointestinal symptoms compared to the non-COVID patients.
- Further research is warranted to determine the pathophysiological connection between COVID and the development of EGMD.

REFERENCES

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