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Research Article

Digestive Manifestations of COVID19: Prospective Study of 1008 Patients

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Abstract

Coronavirus disease 2019 (COVID-19) manifests primarily through respiratory symptoms, however digestive manifestations have been reported, raising the hypothesis of a digestive tropism of the virus. Our series of 1008 patients with COVID 19 showed the presence of digestive symptoms in 67.22%, dominated by anorexia (35.7%), ageusia (35, 18%) and diarrhea (25, 66%). Patients with digestive manifestations without respiratory signs have a better outcome than patients with associated respiratory signs.

Keywords: *Coronavirus Disease 2019 (COVID-19); Anorexia; Ageusia; Diarrhea*

Abbreviations

COVID-19: Coronavirus Disease 2019; SARS-Cov-2: Severe Acute Respiratory Syndrome Coronavirus;

ACE2: Angiotensin 2 Converting Enzyme

Introduction

Since the outbreak of coronavirus disease 2019 (COVID-19) in December 2019 caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), a positive sense single-stranded RNA virus, taxonomically a member of the genus Betacoronavirus. Patients usually present with fever and respiratory symptoms, however, some patients also present with gastrointestinal manifestations with diarrhea, vomiting and abdominal pain [1]. The digestive system can be invaded by SARS-CoV2 and serve as a route of infection.

Objective of the Study

The objectives of our study are to know the prevalence of digestive manifestations during COVID-19, and their evolution.

Materials and Methods

Prospective, mono-centric six-month study (April 2020 - September 2020) carried out on 1008 patients infected with COVID 19. The inclusion criteria were any patient who presented to our service for treatment of COVID19, diagnosis retained according to provisional WHO guidelines, in the presence of a positive RT-PCR test, rapid test and/or chest CT lesions compatible with COVID19. All patients underwent a clinical examination and a full panel of routine laboratory tests, including full blood counts, blood chemistry and blood clotting

function. A pre-established questionnaire collected the history, the data from the clinical examination and made it possible to identify all the digestive signs presented by the patients as well as the paraclinical parameters: biological and morphological.

Results

Among the 1008 patients were included in the study of which 492 of the patients are women, 516 men, the mean age of 53.20 years. The prevalence of digestive symptoms was 67.22% (n = 668) dominated by anorexia 35.7% (n = 361), ageusia 35, 18% (n = 355), vomiting 9.6% (n = 97), diarrhea 25.66% (n = 259), nausea 11.6% (n = 118), abdominal pain 10, 30% (n = 104), and dysphagia 2.18% (n = 22). Cytolysis was observed in 3.07% (n = 21) before any treatment.

Among the 668 patients with digestive manifestations, only 63 patients (9.29%) had presented associated respiratory symptoms and 603 patients (88.93%) presented only digestive manifestations. The average length of hospital stay in patients with gastrointestinal manifestations was not different from that of other patients estimated at 10 days. However, a better outcome is noted in patients with isolated digestive manifestations where no case of worsening or death was noted compared to those who presented with respiratory symptoms associated with digestive signs where 3 patients died.

Discussion

Patients with COVID-19 usually present with fever or respiratory syndrome; in our series 67.22% had a digestive presentation with predominance of anorexia, diarrhea and nausea which joins the Chinese series of 1141 confirmed cases of COVID-19 [2] including 16% of patients (n = 183) presented only gastrointestinal symptoms dominated by anorexia, followed by nausea and vomiting in approximately two-thirds of cases, diarrhea and abdominal pain were presenting symptoms in 37% and 25% of patients respectively. Another cohort of 552 Chinese hospitals comprising 1,099 patients showed the presence of nausea or vomiting in 5% of cases and diarrhea in 3.8% of cases [3]. A cohort of 99 patients included in Wuhan, involving abnormalities in the liver laboratory test during COVID19, found 43.4% of patients with hepatic cytolysis [4]. The table 1 below summarizes the results of the prevalence of digestive manifestations in patients with COVID19 in the main published studies.

Authors	Total number	Average age (years)	Digestive symptoms %	Anorexia %	Diarrhéa %	Nauséa %	Vomiting %	Abdominal pain %
Wang., *et al*. [5]	138	56	10 ,1	39,9	10,1	10,1	03,6	02,2
Lin., *et al*. [6]	95	45,3	61,1	17,9	24,4	17,9	04,2	02,1
Zhang., *et al*. [7]	505	51,2	32,5	18,4	12,2	05,3	02,5	03,3
Guan., *et al*. [8]	1099	47	05	-	03,8	05	05	-
Pan., *et al*. [9]	204	52,9	50,5	39 ,7	17	-	02	01
Zhou., *et al*. [10]	191	56	04,7	-	04 ,7	03,7	03,7	-
Xu., *et al*. [11]	62	41	0,48	-	08	-	-	-
Reddm., *et al*. [12]	318	62,3	62,3	34,8	33,7	26,4	15,4	14,5
Ferm., *et al*. [13]	892	59	24,6	11,8	19,8	16,6	10,2	07,8
Cholankeril., *et al*. [14]	116	50	31,9	22,3	12	12	12	08,8
Our study	1008	53,2	67,22	35,7	25,66	11,6	9,6	10,3

Table 1: *Prevalence of gastrointestinal symptoms from major studies in patients with COVID-19.*

The main pathophysiological mechanism involved depends on the affinity of the virus for angiotensin-converting enzyme 2 (ACE2) receptors in human cells. The virus seems to use them to attach itself to and enter the cell. The ACE2 receptor is present in the alveolar cells but also in the digestive tract. Indeed, it is observed at the level of the upper part of the esophagus, but also at the level of the ileum enterocytes and colonocytes. Also SARS-CoV-2 could be responsible for direct intestinal damage via the inflammatory response. Several studies have also shown the presence of the virus's genetic material in the stool (up to 53% of patients analyzed) [1,15].

In addition, the abnormalities of the hepatic tests are probably of multiple causes, which can be the consequence of a direct attack of SARS-CoV-2 which can bind to cholangiocytes and to hepatocytes via the ACE2 receptor, of lesions of dysimmune origin, of - drug-induced hepatitis or hypoxic hepatitis in severe cases [1,4].

Conclusion

Gastrointestinal manifestations are frequent and nonspecific during SARS-CoV-2 infection. These manifestations can be revealing or predominant followed by a favorable evolution, hence the interest in recognizing them in order to limit the diagnostic delay and the spread of the virus.

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