



Literature Review of Gastrointestinal Lesions in COVID-19

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Abstract: Coronavirus infection 2019 is one of the most global problems of modern medicine today. This disease affects all segments of the population in all countries of the world. A viral infection affects not only the organs of the respiratory system, but also affects all organs and systems of the body. This article discusses the variants of the disease of the gastrointestinal tract on the basis of world literary sources.

Key words: COVID-19, gastrointestinal tract, dyspeptic disorders, virus-associated lesion, diarrhea.

Introduction

At December 2019 G. in city Wuhan provinces Hubei People's Republic of China (PRC) marked flash new coronavirus infection, caused by a new strain of coronavirus that February 11, 2020 was named SARS-CoV-2 (Severe acute respiratory syndrome-related coronavirus B 2020 G. infection acquired character pandemics — recognized as such by the World Health Organization (WHO) on March 11, 2020; it was awarded the title of COVID-19 (Coronavirus disease 2019). Finally January 2021 more than 97 million cases recorded infection with COVID-19 (more than 1 million on the territory of the Republic of Uzbekistan) with a death toll of over 2 million. A typical manifestation of a new infection is the rapid development of bilateral pneumonia with characteristic clinical and radiological symptoms, in some cases (up to 4%) accompanied by the development of acute respiratory distress syndrome (ARDS) [1, 2]. However along with respiratory symptoms in a large number of sick COVID-19 come to light symptoms defeat gastrointestinal tract (GI tract), often emerging in debut diseases [1, 3, 4]. Their appearance is due to the pathogenetic features of the impact of the SARS-CoV-2 virus on the or- human ganism and has an important clinical and pro- gnostic meaning [2].

Main part. Gastrointestinal tract involvement in COVID-19. SARS-CoV-2 — single stranded RNA containing virus families *Coronaviridae*, probably, being _ recombinant between coronavirus leopard mice and a virus of unknown origin. genetic structure SARS-CoV-2 close to crown- the SARS-CoV virus, the causative agent of SARS , flash which fixed in November-December 2002 . in Southern China; before 73% sick had gastrointestinal symptoms, most commonly diarrhea [5]. Virus SARS-CoV-2 assigned to II group pathogenicity; from others viruses families is different more high contagiousness. Main mechanism transmission virus is an airborne, but not excluded contact and fecal-oral transmission paths. The initial stage of penetration virus in organism human is an interaction with receptors angiotensin-converting enzyme 2nd type (ACE2), which there are not only in alveolar cells lungs (what explains rapid development pneumonia), but and in some others cells, in volume

number in cells gastrointestinal tract — esophagus, iliac intestines, thick intestines [1, 2, 6]. Nucleocapsid protein virus was determined in epithelial cells of the salivary glands, stomach, duodenum and rectum intestines [7].

AT quality major pathogenetic mechanisms of gastrointestinal injury in patients with COVID-19 are considered direct action virus on epitheliocytes, an indirect neurotropic effect on mechanisms of intestinal neuroregulation, cytokine “storm” [4]. Two other coronaviruses related SARS-CoV-2 — SARS-CoV and MERS-CoV — also had distinct tropism to gastrointestinal tract (clinical symptoms attended in 20 and 32% cases respectively).

Except Togo, in progress research T. Zuo and et al., carried out in China and including fifteen sick new coronavirus infection, persistent faecal microbiome disturbances with enrichment opportunistic pathogens (*Coproba- cillus* , *Clostridium ramosum* and *Clostridium hathewayi*) and wasting useful commensals; changes persisted after elimination of the virus and resolution of the respiratory symptoms [8].

The presence of a fecal-oral route of transmission of the virus recognized probable many authors on the based on detection by polymerase chain reactions (PCR) in the feces of high levels of the pathogen, in volume including alive strains virus, at a significant number (about 50%) of patients [3, 4]. Cases of negative analyzes of the pharyngeal swabs in patients with typical clinical respiratory symptoms (shortness of breath, dry cough) and with positive analysis feces on the SARS- CoV-2. At the same time, the detection of the virus in the feces is not always correlates with the presence and severity of gastrointestinal symptoms, as well as with the severity of respiratory symptoms [5]. However, persistence was noted and duration identifying ribonucleic acid (RNA) virus in feces. AT research 73 of patients with COVID-19, 53.4% had a positive stool test and remained so for 1-12 days, and in 23.3% of patients - after a negative analysis of respiratory samples. A similar picture is observed in children - in 8 out of 10 children who participated in the study, a smear from the direct guts on the SARS-CoV-2 was positive even at negative swabs from the nasopharynx [6]. This indicates that virus shedding from the gastrointestinal tract may be plentiful and persist after resolution of clinical symptoms.

Dyspeptic syndrome and another gastroenterological symptom, according to publications Chinese researchers there were in 2-40% cases [4]. As a rule, gastrointestinal symptoms were somewhat "late" compared to respiratory, appearing in average behind 7.3 days before hospitalization (respiratory symptoms - for 9 days). There is also data about availability at these patients more expressed clinical manifestations non-gastroenterological symptoms of the disease [9]. The leading symptom (except for nonspecific symptom of anorexia) had diarrhea - in 15% of patients, according to a study that included 1012 patients not heavy forms COVID-19 she is same often was first manifestation infections. More one A Chinese study analyzing the pattern of complaints in 204 patients with COVID -19 from 3 hospitals in Hubei province found complaints from gastrointestinal tract at 48.5% from them. At 83.8% noted anorexia, at 29.3% — diarrhea, at 8.1% — vomit, at 4% — pain in stomach often a combination of several symptoms [10]. By data another major study based on the analysis of 1141 stories disease one from hospitals Wuhan with 7 weeks' period observations behind patient's gastroenterological complaints with COVID-19 were noted in 16% (n= 183) sick and have next frequency detection: nausea and vomit — about at 60% patients, diarrhea - in 37%, abdominal pain - in 25% of patients. In 7 examined patients, dyspeptic syndrome was the only manifestation of the disease. without signs of damage to the bronchopulmonary system. The presence of gastroenterological symptoms that are not quite typical for COVID-19 was the reason for the later diagnosis in most patients. According to Chinese authors, the presence of symptoms of gastrointestinal lesions is associated with more severe variants of the course of coronavirus infection [5]. As a casuistic case of the debut symptom of COVID-19, a case is described hematochesis [11].

According to another study conducted in China summarized data about 1099 patients from 552 hospitals, diarrhea identified at 3.8% sick, nausea or vomit — at 5% sick [6]. Anorexia was deliberately excluded from the symptoms, as it is not, in our opinion, specific sign defeat GIT.

AT several research from USA fully there is no information on the presence of gastrointestinal complaints in patients with COVID-19. However, the first patient with coronavirus infection on the territory USA had a two-day history of nausea and vomiting before hospitalization, diarrhea and discomfort in stomach during the first days of hospitalization; Coronavirus RNA was detected in his feces by PCR on the 7th day treatment in hospital.

By data research A. Hormati and et al., in a number of patients of different ages (19-83 years), hospitalized in gastroenterological clinic in the province of Qom (Iran) and who had diverse symptoms dyspepsia, resistant to medicinal therapy, in progress extended survey revealed the SARS-CoV-2 virus in the fa ringeal smears and various degree defeat lungs on data computer tomography (CT); respiratory symptoms absent and not on- came in progress further observation, all cases run out recovery [13].

At assessment of gastrointestinal symptoms in children with novel coronavirus infection her, revealed a similar situation: in a cohort study, included 171 child, diarrhea marked at 8.8% vomit — at 6.4% sick. Despite on the more mild, as a rule, the clinical course of the disease nia with small expressiveness respiratory symptoms, at children complaints co sides gastrointestinal tract on re structure and frequency appear similar such in adult populations [12].

Taking into account the duration of detection of SARS-CoV-2 in kale and his possible asymptomatic allocation even after a negative pharyngeal swabs require effective infectious the control with careful compliance preventive measures – hand hygiene, social distancing; contact persons should be alerted to the potential risk of infection COVID-19 [1, 9].

The treatment of gastrointestinal manifestations of COVID-19 infection is poorly understood. In clinical observations from the PRC, antiemetic's were symptomatically used to control nausea and vomiting. If you have diarrhea before the appointment of therapy recommended the study of feces for *Clostridioides difficile* toxins and the exclusion of another bacterial infection of the intestinal group; antibiotic therapy was used only in case of bacterial co-infections [9].

Experts WHO and British dietary associations (British Dietetic association) formulated row major positions on corrections nutrition at sick with coronavirus infection COVID-19 [2, 14, 15]. Recommended refusal from alcohol, limitation consumption fat before thirty% daily needs behind check rich fat animal origin- walking, appropriate increase consumption milk and lactic acid products, in volume including containing probiotics, with goal improvements quality intestinal microbiota and possible restrictions attachments SARS-CoV-2 to cellular membrane. shown extension diet behind check vegetables, fruits and whole grains products, elevated consumption vitamin A, D in conditions self-isolation or hospital, limitation consumption sugar sand and salt before 5 G in day everyone from these products

Conclusion The symptoms of the digestive system with a new coronavirus infection COVID-19 usually remain in the shadow of respiratory symptoms, which come to the fore in the clinical picture, should not be underestimated. The tropism of the SARS-CoV-2 virus to epithelial cells of the gastrointestinal tract, the presence and duration of the virus in the feces, the frequent detection of gastrointestinal symptoms in infected patients, the frequent involvement of the liver and pancreas in the pathological process determine the importance of clinical and laboratory assessment of the state of the digestive system due to its undoubted influence on the current status, course and prognosis of the disease as a whole.

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