

Impact of pharmaceutical care for improving health-related quality of life in patients with gastrointestinal pathology

Andra Ababei¹, Iuliana-Carina Gherca², Adrian-Valerica Bobu², Maria Apotrosoaei¹

¹ Department of Pharmaceutical Chemistry, Faculty of Pharmacy, "Grigore T. Popa" University of Medicine and Pharmacy, Iasi, Romania

² ARIS Pharmacy, Iasi, Romania

ABSTRACT

The gastrointestinal pathology is one of the most common health problems, with direct implications in reducing the patient's quality of life. The COVID-19 disease, which has become a global public health emergency since early 2020, affects both the respiratory and digestive systems. The profile of the gastrointestinal disorders, thus becomes much more complex, being able to indicate an early infection with the SARS-CoV-2 virus. In this context, the open-circuit pharmacy beyond the important role of treating patients, has active implications in the education and prevent program of spreading the SARS-CoV-2 virus, at least until the efficacy of the COVID-19 vaccine is demonstrated.

Keywords: gastrointestinal disorders, SARS-CoV-2 virus, patients, pharmacist

INTRODUCTION

The gastrointestinal disorders are considered a major public health problem world-wide because of its continuous increased prevalence. Nowadays, another worrying issue is that recent studies shown that the gastrointestinal symptoms represent a major constituent of the SARS-CoV-2 epidemiological profile [1]. In the current context of the COVID-19 pandemic, the medical and pharmaceutical vigilance are the basis of therapeutic success. The pharmacy and the pharmacists became the central point of the professional support and care for the patient, being considered the promoters of general health through specialized guidance [2].

GASTROINTESTINAL PATHOLOGY. IMPLICATIONS OF SARS-COV-2 INFECTION

The gastrointestinal disorders are the most common diseases in the field of gastroenterology. These are represented by morphological and physiological abnormalities that most often appear associated. It has been shown that psychological factors and stress have a close connection with gastro-intestinal symptoms [3]. This fact is explained by the existence of the enteric nervous system, part of the autonomic nervous system, but also by the intrinsic structure of the gastrointestinal tract wall. The digestive nervous system functions relatively independently of the central nervous system, even if they have the same

Corresponding author:
Andra Ababei
E-mail: andra-s-ababei@d.umfiasi.ro

Article History:
Received: 18 June 2021
Accepted: 5 July 2021

structures of origin: the primitive neural tube and the neural crests from embryo-genesis [4,5].

The new global public health emergency is the pandemic caused by the SARS-CoV-2 virus, also called the coronavirus pandemic (CORONA-VIRUS DISEASE 2019, COVID-19). It was first identified in late 2019 in Wuhan, Hubei Region, China, later turning into a global pandemic [6]. Following intensive studies since the beginning of the SARS-CoV-2 outbreak, it has been found that the virus is 96% identical to bat coronaviruses, thus explaining its origin, the bat [7].

The researchers and medical world have focused their studies also on establishing the characteristic symptoms of COVID-19. The patients infected with SARS-CoV-2 virus had both fever and respiratory symptoms (difficulty breathing, sore throat, sneezing, cough), indicating that the infected cells are present in the lower respiratory tract. In addition, they showed gastrointestinal manifestations, including diarrhea, vomiting and abdominal pain [8]. Thus, it has been found that SARS-CoV-2 infects the epithelial cells of the gastrointestinal glands of the stomach, duodenum, rectum and to a lesser extent the esophagus. Even if the involvement of the digestive system has a lower relevance than the respiratory one, it is essential to be known and evaluated, in order to outline an individualized diagnostic and therapeutic approach [7].

A recent study presented that out of 95 patients diagnosed, 24.2% had diarrhea, 17.9% had anorexia, 17.9% had nausea, and 4.2% vomited. Epigastric discomfort occurred in 2.1% of patients, while an equivalent proportion of patients reported upper gastrointestinal hemorrhage [9]. Another valuable study is the meta-analysis performed by Cheung et al. This involved a total of 4243 patients infected with the SARS-CoV-2 virus from China, South Korea, Singapore, Vietnam, USA and UK. This indicated a prevalence of associated gastrointestinal symptoms of 17.6% of, but also an increased prevalence of individual gastrointestinal symptoms: 26.8% of patients noticed loss of appetite, 10.2% had nausea / vomiting, 12.5% had diarrhea and finally, 9.2% of infected patients reported abdominal pain / discomfort [10].

The results of all the performed studies highlighted that the gastrointestinal symptoms could be the first sign of the COVID-19, appearing in some cases from the beginning of its evolution [7]. Thus, from the clinical point of view, the significance of gastrointesti-

nal symptoms indicates the varied susceptibility of the gastrointestinal system to the SARS-CoV-2 virus, which will be the basis of personalized treatment of COVID-19. Unfortunately, so far no precise drug substances have been discovered in the treatment of COVID-19 [10].

GASTROINTESTINAL DISORDERS TREATMENT - PHARMACIST INVOLVEMENT

The complexity of the gastrointestinal tract results both from its anatomy and its multiple functions: digestive, excretory, endocrine and exocrine. These functions represent the main targets of various therapeutic classes used in the treatment of gastrointestinal disorders. The drugs could be associated with specific action in treating gastrointestinal disorders or non-specific action with beneficial implications in this system [11].

Treatment of peptic ulcer. The peptic ulcer is a chronic disease with a specific histopathological characteristic: discontinuity of the mucosa of the gastrointestinal tract. The main causes for this disease are: Helicobacter pylori infection, use of nonsteroidal anti-inflammatory drugs (NSAIDs) and increased hydrochloric acid secretion.

Therapeutic approaches include, first of all, the eradication of Helicobacter pylori infection. The treatment of choice is currently a triple one, including a proton pump inhibitor (PPI), associated with amoxicillin (metronidazole for penicillin-allergic patients) and clarithromycin. If clarithromycin resistance occurs, quadruple therapy should be used, as following: bismuth subsalicylate, metronidazole and tetracycline associated with a PPI [11, 12].

Secondly, the therapy follows reducing the secretion of gastric acid. The histamine H₂-receptor antagonists (famotidine, ranitidine etc.) are considered competitive and reversible inhibitors selective action on the H₂-receptor in the stomach. By antagonizing histamine with gastric excitatory function, the secretion of gastric acid is thus reduced. Currently, this therapeutic class is often replaced by PPIs (esomeprazole, pantoprazole, omeprazole, lansoprazole etc.) drugs that directly block the H⁺/K⁺ ATPase proton pump, inhibiting thus the secretion of hydrogen ions in the intestinal lumen [13].

Last but not least, it is important the protection and regeneration of the mucosa. Protectors of the gastric mucosa (sucralfate, bismuth subsalicylate) maximize local protective processes, reducing thus the inflammation and preventing a possible injury. For the proper administration of the sucralfate the pharmacist must advise the patient not to administer it concomitantly with PPIs or H₂-receptor antagonists, as it needs acidic pH for activation. Also, although it is well tolerated, it can easily interfere with the absorption of other drugs, which is a problem in patients with permanent multiple medication [11]. Analogues of prostaglandin E₁, such as misoprostol with a chiropractic effect, are widely used in the prevention of NSAID-induced ulcers. In the case of elderly patients with or without similar antecedents or those with moderate to severe risk of developing NSAID-induced ulcers, a prophylactic attitude is required from the pharmacist [14].

Treatment of gastroesophageal reflux. The gastroesophageal reflux disease (GERD) represents a digestive disorder in which stomach contents rise up into the esophagus resulting in either symptoms (taste of acid, heartburn, chest pain, regurgitation, breathing problems) or complications (esophagitis) [15]. H₂-receptor antagonists used in low dose are currently available in the group of over-the-counter (OTC) products for the effective treatment of GERD. Their major drawback is represented by the delayed onset time of the biological effect, at least 45 minutes. During this period the patient's symptoms are not improved, on the contrary an unfavorable anxiety associated with increased gastric secretion could appear [11]. In this case, with a faster but temporary effect, antacid drugs (magnesium or aluminum derivatives, sodium carbonate, calcium carbonate, etc.) are recommended. From a chemical point of view, it neutralizes the gastric acid by the double exchange reaction with water and salt formation, and, from a physical point of view, it forms a protective film through the local adsorption process. Currently, PPIs such as omeprazole, esomeprazole and lansoprazole have a preferential use for the short-term treatment of GERD, especially in patients with severe heartburn [15].

Treatment of irritable bowel syndrome (IBS). Irritable bowel syndrome is defined as a functional bowel disorder characterized by an altered intestinal transit (alternating diarrhea and constipation, bloating), associated with abdominal pain and discomfort. Its physiopathology is still incompletely understood,

that is why its therapy is complex, including both dietary measures and pharmacological treatment, as well as the psychotherapeutic approach [3]. The main drug used in the IBS treatment, trimebutine, targets intestinal motility, aiming to desensitize the intestine. Also, the therapy usually follows the predominant symptom reported by the patient, requiring thus alternative approaches, antidiarrheal agents or laxatives, depending on the type of the symptom.

Classic antidiarrheal drug treatment includes antimotility agents (loperamide) and adsorbents (bismuth salts, diosmectite etc.). In addition, the pharmacist has the essential role to associate to this therapy different substitute antidiarrheals, such as rehydration solutions and lactic acid bacteria-based pharmaceutical products (*Saccharomyces boulardii*, *Lactobacillus acidophilus*, etc.) to restore the intestinal flora. At the same time, the excessive development of the intestinal flora can cause symptoms that are indistinguishable from IBS, involving thus complications for the established therapy and the patient's symptoms [16]. Recent studies on the COVID-19 infection have shown that SARS-CoV-2 virus affects, directly or indirectly, the digestive system through an inflammatory reaction followed by an intestinal damage with diarrhea. However, it was observed that the damage to the intestinal structure caused by this virus was limited, and the lesions could heal in the short term [17].

The treatment of constipation includes various classes of drugs (laxatives, purgatives), but the choice of the right therapeutic option is often up to the pharmacist. Thus, the first pharmaceutical choice is represented by osmotic laxatives such as lactulose or macrogols, which do not have systemic absorption [18]. Irritants and stimulants of intestinal peristalsis (Senna extract, bisacodyl, castor oil) are common in patients' self-medication, but unfortunately prolonged administration may involve irritation of the mucous membranes with diarrhea and abdominal colic, hypokalemia and "laxative disease" [11]. At this point, the pharmacist's intervention through dietary advice is essential both for guiding the administration of laxatives as an exclusively temporary solution, but also for including in the diet high-fiber products, fermented dairy products and promoting an active lifestyle that becomes a constituent part of well-being.

PHARMACIST-PATIENT RELATIONSHIP. IMPROVING THE QUALITY OF LIFE

In the case of chronic diseases that do not benefit from curative treatment, both the attending physician and the pharmacist come to the aid of the patient by offering individualized health education according to specific needs. Thus, the patient is taught how to manage his own symptoms, maintaining a permanent control of the disease [19]. In this case, the health specialist has the task of constantly following the evolution of the disease with a patient-centered approach, knowing his therapeutic history and welcoming him when he needs empathy, support and trust.

In the community pharmacy, the pharmacist implements his medical knowledge and becomes the main pillar for improving the health of patients, having thus a direct implication in increasing their quality of life. In the specific case of gastrointestinal disorders, the pharmacist has a dual role. On the one hand, he performs a responsible triage of patients, with guidance to a specialist in case of acute manifestations (persistent vomiting, acute pain, etc.), and, on the other hand, he gives the patient confidence about the efficacy of the treatment recommended in the pharmacy or prescribed by the doctor [20]. From a psychotherapeutic point of view, the pharmacist provides emotional support to eliminate risk factors such as anxiety and depression, and supports the

patient in increasing the compliance to therapy and its effectiveness. Hygienic-dietary advices are also essential for a healthy and balanced lifestyle that can be outlined as a constituent part of a complete therapeutic management [21].

CONCLUSIONS

Gastrointestinal disorders with unidentified etio-pathogenesis are common among the population, being today also an important sign of infection with the SARS-CoV-2 virus. They have direct implications in the decrease health-related quality of life of chronic patients, but also for those infected with SARS-CoV-2 virus. The complex therapy with a strong economic impact, can still be considered ineffective because in some cases it involves various and repeated attempts to improve specific symptoms.

With the onset of the COVID-19 pandemic, the role of the pharmacist in community pharmacy has expanded. He is considered the health professional support and help for all the patients whenever they need it. Nowadays, more than ever, in this global context, there is an increased requirement of patients for professional counseling and advices and psycho-emotional support. From this point of view, the pharmacist is considered a pillar of reference, both in the health education of the population and in the process of awareness.

Conflict of interest: none declared

Financial support: none declared

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