

Pharmacist-doctor collaboration during the pandemic, effective management of gastrointestinal pathology

Alexandru Mandici¹, Ana Munteanu¹, Daniel Cojocariu¹, Andreea-Teodora Iacob²

¹ Clinical Pharmacy, "Sf. Spiridon" County Emergency Hospital, Iasi, Romania

² Pharmaceutical Chemistry Department, Faculty of Pharmacy, "Grigore T. Popa" University of Medicine and Pharmacy, Iasi, Romania

ABSTRACT

The novel coronavirus SARS-CoV-2 is responsible for the emergence of a potentially life-threatening disease (COVID-19) which has put tremendous pressure on the healthcare systems worldwide. Pharmacists, either from hospital or community pharmacies, are playing an essential role in the management of current COVID-19 pandemic as trustworthy partners of physicians, contributing to the reduction of drug-induced adverse events through medication guidance, thereby improving patient compliance and helping them regaining their confidence to overcome the disease. In the management of gastrointestinal symptoms that may or may not be in the context of COVID-19, pharmacists should recommend that patients consult a physician when gastrointestinal pathology is complex and associated with other symptoms.

Keywords: pharmacist-physician collaboration, COVID-19 gastrointestinal symptoms

INTRODUCTION

Since late December 2019, a novel, emerging coronavirus was identified as the infectious agent responsible for a generally mild but sometimes severe and even life-threatening disease, termed as "coronavirus disease 2019" (COVID-19). The pathogen was initially named as "2019 novel coronavirus" (2019-nCoV) and later renamed as "Severe Acute Respiratory Coronavirus type 2" (SARS-CoV-2). COVID-19 quickly spread from the first epicenter, the city of Wuhan, China's Hubei province, into neighbouring countries, and became a global pandemic. World Health

Organization (WHO) declared it a pandemic on March 11 [1].

As of November 2020, the outbreak is still ongoing, affecting almost every country and territory. Both from clinical and socio-economic perspectives the burden is severe, with total or partial lockdowns taking place currently in countries such as Germany, France, and Italy. Until the authorization of a vaccine, countries have implemented non-pharmacological interventions such as closure of non-essential businesses, social distancing or online classes for schools and universities to prevent an increase in

Corresponding author:
Alexandru Mandici
E-mail: alexandru-v-mandici@d.umfiasi.ro

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

case numbers or to hamper the spread of the virus [2].

COVID-19 has put pressure on healthcare systems in countries around the world, revealing, in the process, weaknesses such as human resources scarcity (physicians, nurses, hospital and community pharmacists) or insufficient equipment (ventilators, alcohol-based sanitizers, face/surgical masks) among others. Often neglected, pharmacists, either from hospital or community pharmacies, have played and are still playing an important role in the management of current COVID-19 pandemic as essential partners of physicians.

PHARMACIST-PHYSICIAN PARTNERSHIP DURING COVID-19 PANDEMIC

The pharmacist-physician collaboration proves vital during crises such as COVID-19 pandemic, when ethical and social issues (i.e., inequity in accessing healthcare services) amplify [3]. Klepser et al. (2016) have shown the importance of collaboration between physician and community pharmacist for treating influenza-like illness, reducing health expenses for patients seeking care in the emergency department for causes that would otherwise require symptomatic care [4]. During the two outbreaks of the 'Severe Acute Respiratory Syndrome' (SARS), Chin et al. (2004) have also described the role of pharmacist in supporting patient care, drug information and distribution [5].

Even outside the pandemic period, the important role of the pharmacist in improving the health system was emphasized. Therefore, in a randomized control trial, Shim et al. (2018) investigated whether the collaboration between pharmacists and clinicians improved health-related outcomes of elderly patients [6]. The intervention group received pharmaceutical care from a pharmacist in collaboration with physicians and was followed-up for 6 months, while the control group received usual care in the outpatient pharmacy. Participants in the intervention group had significantly better medication adherence and a better Medication Appropriateness Index (MAI) score compared with control, authors concluding that such services should be available in all hospitals, especially in countries where pharmacists are not considered an important factor in patient care.

The General Practitioner-Pharmacist Collaboration (GPPC) study, which took place in New Zealand and

involved 498 participants, divided in two groups, the intervention group receiving Comprehensive Pharmaceutical Care (CPC) consultation and were followed up at 3, 6 and 12 months with updating the pharmaceutical care plan as needed, and the control group with which the comparison was done at 6 months. The authors concluded that trained pharmacists committed to undertaking CPC clinical medication reviews in collaboration with general practitioners showed a positive effect according to the MAI, although further research is needed in order to draw any solid conclusions [7].

Zheng et al. (2020) pointed out the emergence of the pharmacist as a partner of the physician during the COVID-19 crisis, in treatment counselling, chronic disease management at the counter, medication adherence and safe medication use [8]. Aruru et al. (2020) proposed a framework for expanding pharmacy professionals' roles and contributions to emergency preparedness and response during the COVID-19 pandemic and beyond it [9]. The framework was based on *American Society of Health-System Pharmacists (ASHP) 2003 Statement on the Role of Health-System Pharmacists in Emergency Preparedness* and also it was based on the conclusions drawn from previous public health issues, such as 2009 H1N1 pandemic, to fully integrate pharmacist within public health EP&R efforts (Emergency Preparedness & Response) and to also enhance recognition of pharmacists' skills, roles and contributions as integral members of the interprofessional healthcare team. Based on methods and resources utilized in developing this framework, the authors identified five key areas, as follows:

1. **Emergency preparedness and response (EP&R).** Here, making reference at the local level-Boards of Pharmacy, professional pharmacy organizations, the MRCs (Medical Reserve Corps), as well as partnerships with county and state health departments and EP&R task forces.
2. **Operations management.** The proposed framework further divides operations into several components such as supply chain and inventory management (ensuring an uninterrupted supply chain and accurately forecast inventories for existing medications and supplies; pharmacies could serve as hubs for screening symptomatic individuals), working conditions and occupational safety, expanded clinics and temporary hospitals, routine supplemental immunizations among others.

3. *Patient care and population health interventions.* Pharmacists should continue to monitor and report adverse events for newly approved vaccines and drugs in emergencies. This could occur in the form of expanded collaborative practice under declared emergencies.
4. *Public health pharmacy education and continuous professional education.* Education is a vital mechanism to ensure the integration, value and sustainability of Pharmacists in EP&R efforts.
5. *Evaluation, research, and dissemination for impact and outcomes.* Research and dissemination for impacts and outcomes of EP&R can enhance recognition and value of pharmacy professionals' contribution during public health emergencies.

PHARMACISTS' ROLE IN GASTROINTESTINAL PATHOLOGY MANAGEMENT

Mao et al. (2020) in *The Lancet Gastroenterology and Hepatology*, report important findings of a systematic review and meta-analysis of data from 35 studies, including 6686 patients with COVID-19 [10]. In 29 studies (6064 cases) reporting GI symptoms in patients with COVID-19, the pulled prevalence of digestive symptoms was 15%, the most common being nausea, vomiting, diarrhea and anorexia. Authors also report that around 10% of patients presented GI symptoms without respiratory features when infected with SARS-CoV-2. These patients were more likely to have a delayed diagnosis, in turn leading to potential issues for themselves and individuals with whom they came into contact. Together with respiratory transmission there seems to be a potential faecal-oral transmission of SARS-CoV-2 [10].

However, the characteristics of GI symptoms in COVID-19 are more insidious than the respiratory symptoms, making them easier to overlook and some patients may have only GI symptoms during the course of disease, and some continue to shed the virus in faeces, despite respiratory samples testing negative [11].

Pharmacists play an important role as active members of the healthcare team. International pharmacists are integrated into pandemic planning and response [12]. Not only do they have an effective role in clinical settings, but in community settings they can

play an important role by making pharmaceutical products available and by raising health awareness among the public [13]. Bashedi et al. (2020) noted that participants in their study (pharmacists and pharmacy students) believed that they could play an effective role during COVID-19 pandemic [14]. This was through infection controls, by counseling individuals regarding hygiene practices needed to reduce infections spread. More than 80% of participants knew how to act in seeking immediate medical attention if they suspected someone may have the coronavirus infection.

One important side of pharmacy practice in the context of pharmaceutical care is being able to triage patients for appropriate healthcare. As Mao et al. (2020) revealed, approximately 15% of patients infected with SARS-CoV-2 present digestive symptoms (nausea, vomiting, diarrhea and anorexia), symptoms overlooked as patients pay more attention to the respiratory symptoms of COVID-19 than the digestive ones [10]. Therefore, pharmacists should be aware of this symptomatology and recommend patients testing for SARS-CoV-2 while also redirecting them to the nearest physician for further investigation.

Almost every disorder presents gastrointestinal symptoms, not only those associated with COVID-19. In the following we will treat the most common symptoms of gastrointestinal disorders, underlining pharmacist's role in their treatment. GI symptoms, with the possible exception of heartburn, usually occur as chronic or recurrent complaints attributed to the pharynx, esophagus, stomach, biliary tract, intestines, or anorectum. While some data are available on the epidemiology of individual symptoms, there are more on the symptom clusters or aggregations known as functional gastrointestinal disorders [15].

Functional disorders of the gastrointestinal tract are estimated to occur in up to one-third of the adult population in Western countries and are recognized as a frequent cause of abdominal pain [16]. For example, chronic constipation is the commonest functional GI symptom in European populations, with almost one in five people being diagnosed [17]. In this case, according to World Gastroenterology Organisation Global Guidelines (WGOG) (2013) [18], pharmacist should check for drug induced constipation (opiates, iron therapy, calcium-based antacids, chemotherapy, antipsychotics, silicates among others) and recommend traditional laxatives, even though

they are associated with high dissatisfaction rates. Stimulant laxatives, osmotic laxatives and glycerine suppositories should be used as a last resort. Bloating or post-prandial abdominal fullness and distension are rather vague entities and might be the root of other several disorders. However, pharmacists should combine pharmacotherapy with lifestyle and dietary interventions and alert the physician when bloating lasts for several weeks or worsens; if it is accompanied by weight loss, abdominal pain, diarrhea; when there is a total absence of gas and stools accompanied by severe pain [18].

Abdominal pain is a localized or diffuse unpleasant feeling of pain in the abdominal cavity. It is a frequent symptom of dyspepsia (indigestion) and irritable bowel syndrome (IBS), when it is accompanied by bloating, nausea, belching or heartburn, but it may be also a sign of a other malignancy in the abdominal cavity, requiring differential diagnosis. WGOG's current recommendation for pharmacists is to ameliorate pain, constipation and/or diarrhea using symptomatic-medication, but goes against using antacids and PPIs (pump protons Inhibitors) for treating abdominal pain/cramping. Additional fiber intake or probiotics also seems to alleviate symptomatology in the long run [18].

Heartburn (pyrosis) is a retrosternal burning sensation that usually moves upward toward the neck and throat. Most patients presenting with heartburn usually have gastroesophageal reflux disease (GERD), according to Rome III consensus. Pharmacists should

Conflict of interest: none declared

Financial support: none declared

check for any medications that may be contributing to heartburn such as NSAIDs, iron, potassium, quinidine, bisphosphonates, benzodiazepines, calcium channel blockers, TCAs (Tricyclic Antidepressants), chemotherapy among others, and recommend avoiding them if possible or suggest a referral to a general practitioner. In addition to lifestyle and dietary adjustments antacids/H2RAs, PPIs (in OTC dose), combination of aluminum and magnesium salts, alginates should be considered. A referral to a physician is strongly recommended if patient is >60 or aged 50-60 and has risk factors for cancer (e.g., tobacco, alcohol, obesity) or if there is no improvement after 2 weeks [18].

CONCLUSIONS

COVID-19 pandemic has put pressure on healthcare systems around the world, with pharmacists and physicians often being in frontline. Pharmacists have proven and are still proving to be an important asset in healthcare services with contributions to drug-based interactions and chronic disease management, thus enhancing the wellbeing of patients and reducing the pressure on the healthcare system. Regarding GI symptomatology in the context of COVID-19 pandemic, pharmacists should be aware of the GI symptomatology and recommend a referral to the physician if other symptoms of COVID-19 are met. Otherwise, pharmacists should continue to offer supportive care (e.g. suggesting lifestyle and diet changes along with the pharmacological treatment), counsel and monitor patients as needed.

REFERENCES

1. Al-Qahtani AA. Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2): emergence, history, basic and clinical aspects. *Saudi J Biol Sci.* 2020;PMC7179492.
2. Balla M, Merugu GP, Patel M et al. COVID-19, modern pandemic: a systematic review from front-line health care providers' perspective. *J Clin Med Res.* 2020; 12:215-229.
3. Behzadifar M, Ghanbari MK, Bakhtiari A et al. Ensuring adequate health financing to prevent and control the COVID-19 in Iran. *J Equity Health* 2020; 19:61.
4. Klepser ME, Klepser DG, Dering-Anderson A et al. Effectiveness of a pharmacist-physician collaborative program to manage influenza-like illness. *J Am Pharm Assoc.* 2016;56:14-21.
5. Chin TW, Chant C, Tanzini R. Severe acute respiratory syndrome (SARS): The pharmacist's role. *Pharmacother.* 2004;24:705-712.
6. Shim YW, Chua SS, Wong HC, Alwi S. Collaborative intervention between pharmacists and physicians on elderly patients: a randomized controlled trial. *Ther Clin Risk Manag.* 2018;14:1115-1125.
7. Bryant LJM, Coster G, Gamble GD, McCormick RN. The general practitioner-pharmacist collaboration (GPPC) study: a randomised controlled trial of clinical medication reviews in community pharmacy. *Int J Pharm Pract.* 2011;19:94-105.
8. Zheng SQ, Yang L, Zhou PX et al. Recommendations during COVID-19 pandemic: a China perspective. *Res Soc Admin Pharm.* 2020
9. Aruru M, Troung HA, Clark S. Pharmacy emergency preparedness and response (EP&R), a proposed framework for expanding pharmacy professionals' roles and contributions to emergency preparedness and response during the COVID-19 pandemic and beyond. *Res Soc Admin Pharm.* 2020;
10. Mao R, Qiu Y, He JS. Manifestation and prognosis in gastrointestinal and liver involvement in patients with COVID-19: systematic review and meta-analysis. *Lancet Gastroenterol Hepatol.* 2020;1253:30126-30136.

11. Tu L, Yang L. Implications of gastrointestinal manifestation of COVID-19. *Lancet Gastroenterol Hepatol*. 2020;5:30132-30141.
12. ***Improving pharmacist involvement in pandemic influenza planning and response in Australia. Australian Healthcare and Hospital Association, 2018. https://ahha.asn.au/system/files/docs/publications/summary_deeble_institute_issues_brief_no._25.pdf.
13. Balick R. In pandemic planning, pharmacist play a crucial role. *Pharm Today* 2016;22:63.
14. Basheti IA, Nassar R, Baracat M et al. Pharmacists readiness to deal with the coronavirus pandemic: assesing awareness and perception of roles. *Res Soc Admin Pharm*. 2020;
15. Drossman DA, Li Z, Andruzzi E et al. US householder survey of functional gastrointestinal disorders. Prevalence, sociodemography, and health impact. *Dig Dis Sci*. 1993;38:1569-1580.
16. Bommelaer G, Poynard T, Le Pen C et al. Prevalence of irritable bowel syndrome (IBS) and variability of diagnostic criteria. *Gastroenterol Clin Biol*. 2004;28:554-561.
17. Zhou H, Yao M, Cheng GY et al. Prevalence and associated factors of functional gastrointestinal disorders and bowel habits in Chinese adolescents: a school-based study. *J Pediatr Gastroenterol Nutr*. 2011;53:168-173.
18. ***Coping with common GI symptoms in the community, World Gastroenterology Organisation Global Guidelines, 2013.
19. <https://www.worldgastroenterology.org/UserFiles/file/guidelines/common-gi-symptoms-english-2013.pdf>