



Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.



Contents lists available at ScienceDirect

Asian Journal of Surgery

journal homepage: [www.e-asianjournalsurgery.com](http://www.e-asianjournalsurgery.com)

Letter to Editor

## Changes in the number and condition of patients admitting to the emergency department with abdominal pain during the COVID-19 pandemics: Single-center experience



### Keywords:

Abdominal pain  
Acute abdominal pain  
COVID-19  
Emergency department

To the editor,

The 2019 novel coronavirus disease has brought various challenges to the management of patients in hospitals. Since the first case of coronavirus disease 2019 (COVID-19) was reported in Poland, the Polish Council of Ministers has issued a series of restrictive measures to limit the spread of the contagion including limiting the hospitals' activity.

The aim of our study was to analyze the number and condition of patients reporting abdominal pain (AP) within specific surgical disease groups during the 3-month period of the initial exacerbations related to the COVID-19 pandemic in Emergency Department (ED) in one center in Poland from March to May 2020. Moreover, the purpose of this work was to determine whether the incidence and distribution of certain diagnoses were different than in the regular epidemiological situation in the same period one year prior.

The study protocol was approved by the Commission of Bioethics at Wroclaw Medical University (KB-79/2021).

We retrospectively investigated the condition of 824 patients who were admitted to the ED with AP symptoms from 1 March to 31 May 2019 and 571 patients in the analogous period in 2020. Patient data was assembled from the ED medical records in University Hospital in Wroclaw, Poland.

The population of patients in 2019 and 2020 was characterized in Table 1. AP was divided into four categories: acute AP (AAP) lasting up to five days, chronic AP (CAP) lasting over 90 days, nonspecific AP (NAP) lasting 5–90 days and patients with unknown AP duration.<sup>1,2</sup> The patient sample was classified into eight different diagnostic groups (Fig. 1).

The results show undeniable decrease in the admissions of patients presenting to the ED with AP as the main complaint from March to May 2019 in comparison to the same period in 2020. This supports the current concerns that the public may refrain

from seeking care for serious conditions due to a fear of COVID-19 exposure in healthcare facilities. Despite the decline, it was visible that distribution of patients with AAP, CAP, NAP remained similar to that in 2019. A significant change in triage was noticed, as more patients in 2020 were marked with a red tag, implicating that the condition of some admitted patients was worse than in 2019 (Table 1). It should be noted that this was the only parameter indicating deterioration of the patients' conditions. The analysis of laboratory parameters within individual diagnostic groups did not show significant changes (Supplementary materials).

Due to a number of social-distancing measures, we could expect a reduction in injuries associated with outdoor activities. However, a decreased incidence of major diagnoses, such as acute appendicitis should occur at a similar rate in different periods. Although, many studies have noted a significant decline in emergency admissions.<sup>3–5</sup> This suggests that patients at admission would present worse conditions than those in the previous year, which our research contradicts.

In conclusion, the COVID-19 outbreak shows better communica-

**Table 1**

General characteristics of patients attending the ED from March to May 2019 and 2020.

Variable	All patients	2019	2020	p-value
<b>Age, median (IQR)<sup>a</sup></b>	48 (32–70)	46 (30–70)	50 (33–69)	0.29
<b>Gender, n (%)</b>				0.69
Male	665	379 (46.0%)	286 (50.1%)	
Female	730	445 (54.0%)	285 (49.9%)	
<b>Duration of pain</b>				0.13
Up to five days	919	543	376	
5–90 days	209	109	100	
Over 90 days	12	5	7	
Unknown	255	167	88	
<b>Triage tag colour</b>				<0.001
Blue	105	26	79	
Green	934	559	375	
Yellow	327	231	96	
Red	23	5	18	
Unknown	6	3	3	
<b>Hospitalization</b>				0.73
Surgical department	348	195	153	
Other ward	233	132	101	
Discharged	784	477	307	

<sup>a</sup> IQR: Interquartile Range.

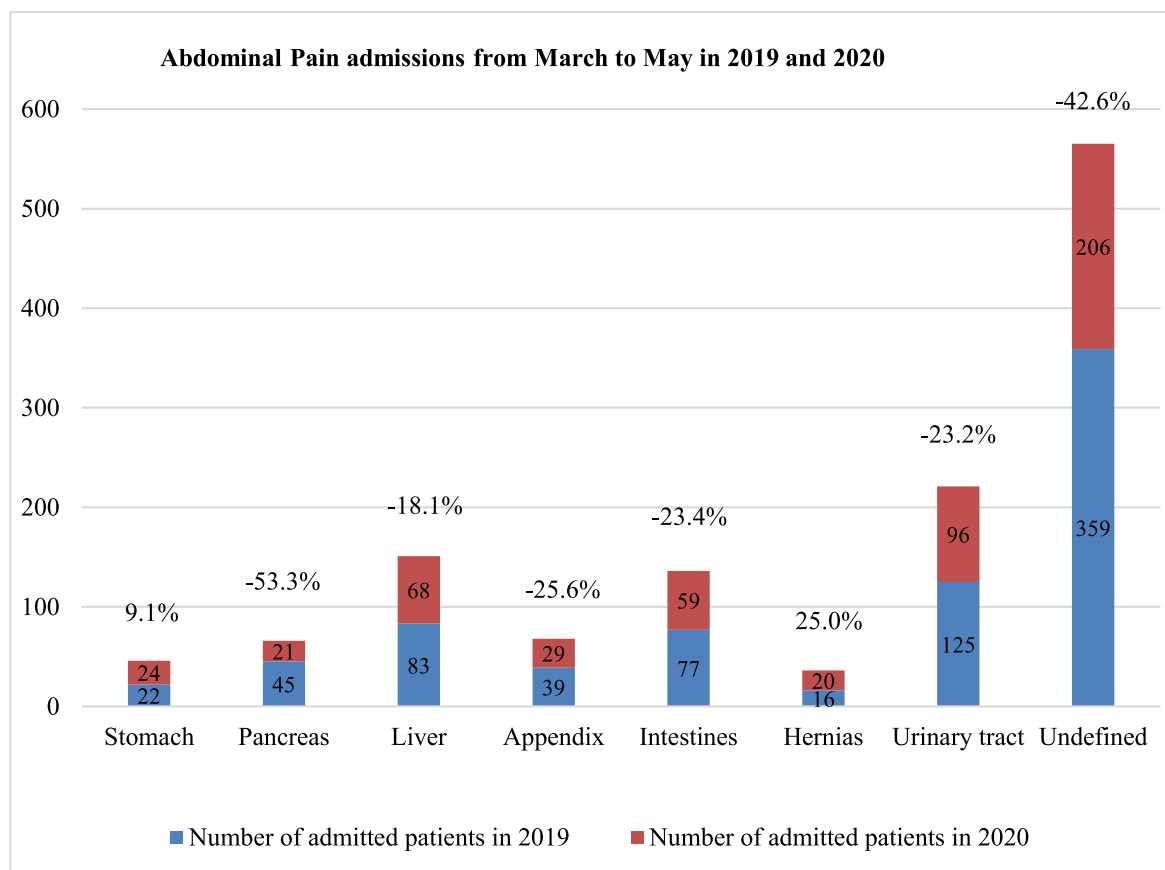


Fig. 1. Abdominal pain related admissions from March to May 2019 and 2020 divided into conditions related to specific organ and percentage change occurred in 2020 with respect to 2019.

tion between the government and society should be carried out. Public health services must ensure safety and encourage patients to continue using health services.

**Funding statement**

None.

**Declaration of conflicting interest**

All authors declare no conflict of interest.

**Acknowledgements**

None.

**Appendix A. Supplementary data**

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.asjsur.2021.06.006>.

**References**

- Gans SL, Pols MA, Stoker J, Boermeester MA. Guideline for the diagnostic pathway in patients with acute abdominal pain. *Dig Surg.* 2015;32(1):23–31. <https://doi.org/10.1159/000371583>.
- MSD Manual, Gotfried J. Chronic abdominal pain and recurring abdominal pain, 10.10.2020 <https://www.msmanuals.com/home/digestive-disorders/symptoms-of-digestive-disorders/chronic-abdominal-pain-and-recurring-abdominal-pain>; Mar 2020.

- Franchini S, Spessot M, Landoni G, et al. Stranger months: how SARS-CoV-2, fear of contagion, and lockdown measures impacted attendance and clinical activity during February and March 2020 at an urban emergency department in Milan. *Disaster Med Public Health Prep.* 2020 Jul 27:1–10. <https://doi.org/10.1017/dmp.2020.265>.
- Oseran AS, Nash D, Kim C, et al. Changes in hospital admissions for urgent conditions during COVID-19 pandemic. *Am J Manag Care.* 2020;26(8):327–328. <https://doi.org/10.37765/ajmc.2020.43837>.
- Grandi G, Del Savio MC, Caroli M, et al. The impact of COVID-19 lockdown on admission to gynecological emergency departments: results from a multicenter Italian study. *Int J Gynaecol Obstet.* 2020;151(1). <https://doi.org/10.1002/ijgo.13289>.

Urszula Tokarczyk\*, Anna Śliwa  
 Department of General, Minimally Invasive and Endocrine Surgery,  
 Wrocław Medical University, Wrocław, Poland

Łukasz Nowak  
 Department of Urology and Urological Oncology, Wrocław Medical  
 University, Wrocław, Poland

Karolina Sutkowska, Krzysztof Kaliszewski  
 Department of General, Minimally Invasive and Endocrine Surgery,  
 Wrocław Medical University, Wrocław, Poland

\* Corresponding author. Department of General, Minimally Invasive and Endocrine Surgery Rektorat, wybrzeże Ludwika Pasteura 1, 50-367, Wrocław, Poland.  
 E-mail address: [tokarczyk.ula@interia.eu](mailto:tokarczyk.ula@interia.eu) (U. Tokarczyk).

24 May 2021  
 Available online 14 June 2021