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The impact of COVID pandemic on quality of life in patients with chronic cough

Abstract

Introduction. A chronic cough (CC) significantly impairs patients' quality of life. During COVID-19 pandemic cough has been considered as a cardinal symptom of SARS-CoV-2 infection.

Aim. The aim of this study was to assess the impact of COVID-19 pandemic on functioning of patients with a chronic cough.

Material and methods. A survey of 13 closed questions, was conducted among 100 adults with CC who were treated in a cough clinic between November 2021 and February 2023. At the same time cough severity was measured by 100 mm Visual Analogue Scale (VAS) and cough related quality of life using Leicester Cough Questionnaire (LCQ).

Results. Median VAS was 40 mm (20-64 mm) and median LCQ was 14.8 points (IQR 11.6-17.6). 68 patients with CC experienced unfavorable social reactions and 40 patients declared that they avoided going out because of cough. Wearing masks led to increase in cough severity in 53 patients. Despite limitations in regular medical visits, only 20 patients (21%) declared worse quality of medical care. When it comes to 48 patients, they had SARS-CoV-2 infection confirmed by antigen or RT-PCR test, but only in 27 of them (56%) cough became more severe during COVID-19 infection and only 15 patients (15/48, 31%) required modification of previous antitussive treatment due to COVID-19 infection.

Conclusion. The comparison of patients who had SARS-CoV-2 infection with those who did not, revealed that patients with COVID-19 infection were younger, more often experienced unfavorable social reactions in public places, their cough seemed alarming to the relatives to a greater extent and wearing masks was more burdensome for them. Authors findings suggest that COVD-19 had a negative impact mainly on social and psychological aspects of life in adults with CC.

Keywords: COVID-19, chronic cough, quality of life.

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INTRODUCTION

Chronic cough (lasting >8 weeks) affects 4-10% of adults [1-4]. It is a bothersome ailment due to long duration, high intensity and limited efficacy of antitussive therapy [3]. It significantly impairs patients' quality of life (QoL) on physical, psychological and social levels [1-3].

During COVID pandemic cough has been considered as a cardinal symptom of SARS-CoV-2 infection. Furthermore, an increasing number of reports describes cough as one of persistent symptoms forming post-COVID syndrome [5]. It is hypothesized that the pathways of neurotropism and neuroinflammation through the vagal sensory nerves, which are implicated in SARS-CoV-2 infection, lead to a cough hypersensitivity state and post-COVID syndrome [5].

There is limited data about the influence of COVID pandemic on all the aspects determining QoL of patients with CC, such as psychological, social and physical conditions. We have found individual scientific papers concerning the impact of COVID pandemic on QoL of patients with selected respiratory diseases causing CC, such as asthma [6], COPD [7], lung cancer [8] or cystic fibrosis [9]. However, to the best of our knowledge there is no data concerning impact of COVID on quality of life in patients, in whom CC is the main ailment. Therefore, the aim of our study was to assess the impact of COVID pandemic on perception of cough in patients with CC managed in our cough clinic. We have been assuming that SARS-CoV-2 infection deteriorates perception of cough in patients with chronic cough and affects negatively social aspect of life in all adults with CC.

PATIENTS AND METHODS

Clinical and Demographic Data Assessment

We have developed a questionnaire which included 13 closed questions concerning impact of COVID pandemic on functioning of patients with chronic cough (Supplementary material, Questionnaire 1). Initially its' comprehension was verified in 5 patients. At the same time cough intensity was measured by 100 mm Visual Analogue Scale and quality of life was measured by dedicated questionnaire, Leicester Cough Questionnaire (LCQ; range 3-21 points, the higher score means better QoL). The survey was conducted among

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100 consecutive adults with chronic cough who were treated in a cough clinic at Department of Internal Medicine, Pulmonary Diseases and Allergy between November 2021 and February 2023 and who agreed to fill out the questionnaire. The study was approved by the Institutional Review Board (AKBE/17/2023) and informed consent was obtained from all subjects involved in the study.

Statistical analysis

Statistics was performed using MedCalc® Statistical Software version 20.218 (MedCalc Software Ltd, Ostend, Belgium). Data are shown as median and interquartile range or number of patients. The chi-square and Mann-Whitney U tests were used to compare patients, who had confirmed symptomatic SARS-CoV-2 infection and these who did not have COVID. A p-value lower than 0.05 was regarded significant.

RESULTS

Ultimately, 99 out of 100 patients replied to the whole questionnaire and they were included in further analysis. Median age of patients was 59 years (IQR 47-69) and median cough duration was 7 years (IQR 3-13). There was female predominance (F-64, M-35). Median cough severity measured by VAS was 40 mm (20-64 mm) and median LCQ was 14.8 points (IQR 11.6-17.6).

Sixty eight (68%) patients experienced unfavourable social reactions and 40 patients declared that they avoided going out because of cough. Sixty one patients were working regularly and among them 9 (15%) experienced difficult situation at work because of their cough. Wearing masks led to increase in cough severity in 53 patients. Despite limitations in regular medical visits due to pandemic restrictions among the whole group, only 20 patients (21%) declared worse quality of medical care.

Forty eight patients had SARS-CoV-2 infection confirmed by positive antigen or RT-PCR test, but only in 27 of them (56%) cough became more severe during COVID infection and only 10 patients (10/48, 21%) required modification of previous antitussive treatment due to COVID infection.

The comparison between patients who had SARS-CoV-2 infection with those who did not revealed that patients with COVID infection were younger, more often experienced unfavourable social reactions in public places and their cough seemed alarming to the relatives to a greater extent. Moreover, wearing masks was more burdensome for those who suffered from COVID-19 and their visits in a cough clinic were more frequently reduced (Table 1).

TABLE 1. The comparison of the results between patients with and without COVID infection.

	COVID +	COVID –	p-value
N	48	51	-
Age, years, median (IQR)	49.5 (44.3-61)	68 (56-73.8)	<0.001
Gender, Female/Male	34/14	30/21	0.21
Duration of cough, years, median (IQR)	8.5 (3-13)	6 (3-10)	0.48
Cough-related quality of life measured by LCQ, points, median (IQR)	14.6 (11.6-16.6)	15.77 (11.57-17.63)	0.14
Cough severity measured by VAS, mm, median (IQR)	42.5 (20-71.3)	33 (20-50)	0.09
Patient's suspicions of SARS-CoV-2 infection due to changes in cough characteristics, n (%)	23 (48)	16 (33)	0.09
Reduction of cough clinic's appointments, n (%)	30 (62.5)	20 (39)	0.02
Modification of previous antitussive treatment, n (%)	10 (21)	5 (10)	0.13
Masks-related increase in cough severity, n (%)	32 (67)	21 (41)	0.01
Changes in perception of patient's cough by family members, n (%)	27 (56)	14 (27.5)	0.004
Experiencing unfavourable social reactions, n (%)	39 (81)	29 (57)	0.009
Avoidance of public places, n (%)	24 (50)	16 (31)	0.06

Abbreviations: IQR – interquartile range; LCQ – Leicester Cough Questionnaire; VAS – Visual Analogue Scale

DISCUSSION

In our study we documented the negative impact of COVID-19 mainly on social and psychological aspects of life in adults with CC. The majority of them (68%) experienced unfavourable social reactions, what might negatively affect their QoL. This situation was more severe among those who suffered from COVID-19 and could be one of the reasons for avoidance of public places in half of the mentioned group. However, it should be remembered that social isolation is one of the key concerns in patients with CC in general [10] and it only might have been enhanced during the pandemic period. Usually family and friends from the closest environment are those who understand patients' situation and are likely to be sensitive to the person's needs [11]. However, our findings indicate that COVID pandemic changed perception of patients' cough by their family members, particularly among patients with COVID-19, what could intensify patients' fear of getting infected or infecting others and exacerbate anxiety about health consequences of infection. Contrary to our assumptions, SARS-CoV-2 infection deteriorated the control of chronic cough only slightly and only 21% of patients who suffered from SARS-CoV-2 infection and 10% of those who did not needed escalation of previous antitussive treatment.

Review of the databases revealed another studies concerning QoL of patients with CC during COVID-19 pandemic, however, focusing exclusively on selected respiratory diseases. It appears that increased fear of infection or even dying was a widespread feeling accompanying patients regardless of the reason of CC [6-9]. Nevertheless, it was not always associated with decline in mental health. While levels of anxiety, depression and wellbeing deteriorated during pandemic among young adults with asthma [6], COPD patients have adapted quite well to the period of lockdown and their scores in health-related quality of life questionnaires and in anxiety and depression tests were comparable to those observed in patients with COPD analysed under normal circumstances [7]. Due to lockdown many non-urgent medical appointments were delayed or cancelled and replaced by telephone medical visits what gave rise to concerns about deterioration in monitoring the treatment. One of the studies evaluating the impact of COVID-19 pandemic on COPD patients reports that although up to 90% of clinical visits of their COPD patients were cancelled, only 13% of them had an exacerbation requiring systemic corticosteroids and/or antibiotics for self-treatment at home [7]. Similar results were observed in our patients. The analysis of the studies concerning the impact of COVID-19 pandemic on patients suffering from other chronic diseases showed that deterioration in QoL was a common problem regardless of the illness. Both cancer patients [12], those with inflammatory

diseases [13,14] and those who suffer from neurodegenerative disorders [15] experienced significant worsening of their QoL. In our study, the pandemic affected mainly psychological and social, but not physical aspects of QoL.

Our study has a few limitations. Firstly, we used a self-designed survey due to lack of established questionnaire for investigation of the influence of COVID-19 pandemic on patients with CC. Secondly, our questionnaire's comprehension was verified preliminary among a relatively small sample of 5 patients. Thirdly it was a single centre study with limited number of patients. However, despite all the limitations, we believe that results of this study point at factors related to COVID that negatively affected quality of life among adults with chronic cough.

CONCLUSIONS

In conclusion, our findings suggest that COVID-19 pandemic had a negative impact mainly on social and psychological aspects of life in adults with CC, what was more pronounced among those who had COVID-19. Despite the fact that the majority of adults with CC experienced decrease in their quality of life, only few of them noted deterioration of cough or needed escalation of antitussive therapy.

Supplementary Materials: Questionnaire S1: The impact of COVID on functioning of patients with chronic cough.

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Institutional Review Board Statement: The study was conducted in accordance with the Declaration of Helsinki, and approved by the Institutional Review Board (AKBE/ 17/2023).

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

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