

Prevalence of the long-COVID in the population of older residents of institutional care in Poland

Rozpowszechnienie zespołu long-COVID wśród starszych pacjentów przebywających w instytucjach opieki długoterminowej

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Abstract

Introduction The study addresses the vulnerability of older adults in nursing homes to COVID-19, particularly concerning the post-COVID syndrome. **Aim** We evaluated the utility of the COVID-19 Yorkshire Rehabilitation Scale (C19-YRS) in long-term care settings, aiming to evaluate the prevalence and burden of post-COVID. **Patients and Methods** The presence of new or worsened symptoms and deteriorations in functioning were assessed in the group of long-term care facility residents three months after COVID-19 infection using C19-YRS. **Results** The study enrolled 203 residents, and 70.4% experienced one or more new or aggravated symptoms of deterioration in functioning. Hospitalization during infection was linked to an increased risk of COVID-19-related problems. The most common symptoms included fatigue, weakness, dizziness and falls, and sleep disturbances, and the most frequently affected functioning domain was mobility. **Conclusions** The prevalence of post-COVID symptoms and functional disabilities was significant among the study's long-term care residents. The C19-YRS effectively identified symptoms and disabilities, underscoring the need for tailored post-COVID management in the studied population. (*Gerontol Pol* 2023; 31; 212-216) doi: 10.53139/GP.20233132

Keywords: C19-YRS, COVID-19, long-term care, post-COVID

Streszczenie

Wstęp W badaniu oceniano podatność osób starszych przebywających w instytucjach opieki długoterminowej na COVID-19, szczególnie w odniesieniu do zespołu post-COVID. **Cel** Oceniliśmy przydatność Skali Rehabilitacji Yorkshire COVID-19 (C19-YRS) w ocenie obciążenia odległymi następstwami COVID-19 wśród pacjentów objętych opieką długoterminową, mając na celu ocenę częstości występowania i obciążenie pacjentów związane z long-COVID. **Pacjenci i metody** Obecność nowych lub pogorszenia objawów oraz funkcjonowania oceniano w grupie mieszkańców placówek opieki długoterminowej trzy miesiące po infekcji COVID-19, wykorzystując C19-YRS. **Wyniki** W badaniu wzięło udział 203 pacjentów, a 70,4% doświadczyło jednego lub więcej nowych lub nasilonych objawów lub pogorszenia funkcjonowania. Hospitalizacja w trakcie infekcji była związana ze zwiększonym ryzykiem odległych problemów związanych z COVID-19. Najczęstsze objawy to zmęczenie, słabość, zawroty głowy i upadki oraz zaburzenia snu, a najczęściej upośledzoną domeną funkcjonowania była mobilność. **Wnioski** Częstość objawów składających się na post-COVID i niepełnosprawności funkcjonalnych była znacząca wśród mieszkańców długoterminowych placówek opieki. Skala C19-YRS była skuteczna w identyfikowaniu zakresu objawów oraz niepełnosprawności i ujawniła szeroki zakres potrzeb opieki post-COVID w badanej populacji. (*Gerontol Pol* 2023; 31; 212-216) doi: 10.53139/GP.20233132

Słowa kluczowe: C19-YRS, COVID-19, opieka długoterminowa, post-COVID

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Introduction

Older adults residing in nursing homes or long-term care facilities are among the most vulnerable to COVID-19. Compared to community-dwelling, these persons share older age with a higher level of multimorbidity, frailty, and disability. These factors contribute to a higher risk of infection, disease course, and death [1,2]. Living in a closed community supports the spread of disease and resulted in the early phase of the pandemic in excessive mortality accounted mainly in nursing homes and long-term care facilities [3,4]. As a result, institutionalized care is perceived nowadays adversely.

Problems of the long-term care residents are also related to recovery after COVID-19. The data about the prevalence and manifestations of post-COVID in this population is limited. Evidence suggests that COVID-19 survivors from long-term care do not recover to pre-existing functioning [5-8]. Multiple knowledge gaps require research to inform guidelines for post-COVID management in this unique context [9]. One of the developments of the pandemic time was the COVID-19 Yorkshire Rehabilitation Scale (C19-YRS). C19-YRS is a patient-reported outcome measure designed to assess the long-term effects of COVID-19, focusing on symptoms, activities, and functioning [10]. The scale is instrumental in evaluating the consequences of COVID-19 infection, called post-COVID syndrome (PCS), long-COVID, or post-acute sequel of COVID-19 (PASC) [9,11]. According to the World Health Organization, post-COVID is defined as the continuation or development of new symptoms three months after the initial SARS-CoV-2 infection, lasting at least two months without explanation. Studies show that around 10–20% of people infected by SARS-CoV-2 may go on to develop symptoms that can be diagnosed as long COVID [12]. The C19-YRS assesses 22 items, including symptoms, functional disability, and global health score. An observational study sought to appraise the clinical utility and psychometric attributes of the C19-YRS among patients with long-COVID [10].

The C19-YRS is not primarily categorized as a screening tool; it has been designed as a patient-reported outcome measure to evaluate the long-term impact of COVID-19 [10]. However, the authors mention a self-report version/ digital format of the C19-YRS use for assessing long-term rehabilitation needs in COVID-19 survivors through a telephone screening tool [13]. This suggests that in some contexts, it could potentially be used in a screening capacity to identify individuals who may require further evaluation or intervention. In this study, we used the C19-YRS to screen and characterize

the burden of long-COVID among long-term care residents.

Aim

This study aimed to estimate the prevalence of the long-COVID in the population of COVID-19 survivors among the residents of social assistance and nursing homes. The C19-YRS was used as a screening tool to identify the main symptoms and domains of functioning affected three months after the infection.

Patients and methods

The study was authorized by the Ethics Committee at the Poznan University of Medical Sciences (approval note KB-247/21). Before data collection, informed consent was obtained from the patients or their legal representatives. Patient characteristics and COVID-19 course requiring hospitalization were recorded, and fatal outcomes were reported up to one year after the infection.

COVID-19 survivors residing in social assistance or nursing homes in Wielkopolska, Poland, were enrolled in the study without further restrictions. Diagnoses of SARS-CoV-2 infection, established between April and December 2020, were based on a real-time reverse transcriptase-polymerase chain reaction. Screening for long-term COVID was performed using the C19-YRS, and three were performed three months after the infection. The C19-YRS was obtained from Rory J. O'Connor, Leeds General Infirmary, Leeds, United Kingdom, and translated into Polish. In brief, the C19-YRS comprised 22 items to evaluate the persistent symptoms and functional disabilities associated with long-COVID. Items are grouped into four subscales: symptom severity, functional disability, overall health, and additional symptoms. Patients reported each item's presence and severity during the assessment and before the infection [10]. Here, we report data about the prevalence of symptoms and disabilities that appeared or worsened after the infection compared to the time before the disease based on patient claims.

Basic patient characteristics, symptoms, and disability prevalence are reported descriptively as medians and ranges in the case of continuous variables or as counts and percentages in the case of nominal variables. Within-group comparisons were performed by calculating odds ratios (OR) with a 95% confidence interval (CI) and associated P-value. A P-value less than 0.05 was considered significant.

Results

The study enrolled 203 patients from five institutional care facilities in Wielkopolska. The median age was 79 years (range: 61 – 101), and 38,9% were males. In 107 patients (52.7%), COVID-19 had a course not requiring hospitalization, and 96 patients (47.3%) were hospitalized. All patients had the C19-YRS assessment three months after the disease, and 30 died during the next nine months of follow-up. Six patients were lost to follow-up. The median number of the C19-YRS items worsened after COVID-19 was 2 (range: 0-20), and 143 patients (70.4%) reported new or worsening at least one item of the C19-YRS. In this group, the median number of worsened items was 4 (range: 1–20). Figure 1 presents the proportions of patients according to the number of worsened items.

The COVID-19 requiring hospitalization was associated with an increased risk of the presence of post-di-

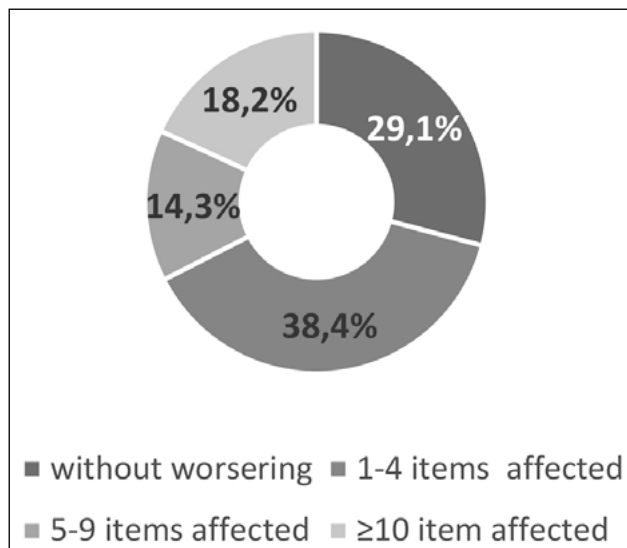


Figure 1. Patients without and with worsening in the COVID-19 Yorkshire Rehabilitation Scale after the illness according to the number of items affected

Table I. Patients experiencing problems related to COVID-19. Percentages indicate proportions of the whole studied population (n = 203)

Symptoms	N (%)	Functioning	N (%)
Breathlessness	35 (17.2%)	Communication	45 (22.2%)
Cough/ throat sensitivity/ voice change	30 (14.8%)	Mobility	49 (24.1%)
Swallowing/ nutrition	18 (8.9%)	Personal care	39 (19.2%)
Fatigue	67 (33.0%)	Other Activities of Daily Living	30 (14.8%)
Continence	38 (18.7%)	Social role	22 (10.8%)
Pain/ discomfort	44 (21.7%)	Overall health	52 (25.6%)
Cognition	49 (24.1%)	Other symptoms	102 (50.2%)
Anxiety	29 (14.3%)		
Depression	39 (19.2%)		
Post-traumatic stress disorder	31 (15.3%)		

sease symptoms and disabilities compared to patients who stayed in the facility during the disease; OR = 2.82, 95%CI: 1.48 – 5.38, P = 0.0017. The risk of death in the follow-up was not associated with new or worsened symptoms or functioning; OR = 1.24, 95%CI: 0.54-2.84, P = 0,6119. The number of affected C19-YRS items was not associated with the risk of death; OR = 1.05, 95%CI: 0.98 – 1.13, P = 0.1397.

Table I presents the proportions of patients affected by each item within four C19-YRS domains. Among patients with breathlessness (n = 35), they were affected mainly during dressing themselves (74.3%) but also at rest and walking up stairs (60.0% and 62.8%, respectively). Among patients with discomfort within the throat (n = 30), the cough was the main problem (80.0%), followed by voice changes (33.3%) and wheezing breath (20.0%). Patients reported problems controlling the bowel (n = 28) and bladder (n = 36). Among reporting pain (n = 44), the most common was joint pain (68.2%), followed by headache (47.7%) and muscle pain (43.2%). Other pains reported included chest and abdominal pains. Patients reported unwanted memories, unpleasant dreams, and trying to avoid thoughts or feelings about their illness or hospital admission, being positive in the post-traumatic stress disorder screen. Half of the patients (n = 102) reported other symptoms, most frequently weakness (84.3%), dizziness and falls (58.8%), sleep problems (52.0%), palpitations (30.4%), skin rash (13.7), and fever (8.8%).

Discussion

We studied the prevalence of post-COVID symptoms and functioning disabilities three months after COVID-19 infection in long-term care residents. The most

common symptoms developed or worsened after COVID-19 were fatigue, weakness, dizziness and falls, and sleep disturbances, each affecting over 25% of survivors. Every fourth patient reported worsening of general health after the illness. Mobility was the most affected functioning domain, followed by communication and personal care. The prevalence of symptoms and disabilities informs about the post-COVID burden and supports care planning.

An extensive populational study showed the prevalence of ≥ 1 symptom three months after the infection in 36.5% of COVID-19 survivors in the general population [14]. Previously, in the population of residents of the Dutch nursing homes, the presence of ≥ 1 symptom was confirmed in 53.5% of patients [5], whereas, in a similar group, we found new or worsened symptom or disability in 70.9%. These results indicate that elderly, institutionalized-care populations are not only more prone to infection and severe course of COVID-19 but also to long-COVID. Hospitalization requiring COVID-19 was associated with an increased risk of health and functioning deterioration. In general, the risk for persistent and new sequelae in adults aged ≥ 65 years is increased after acute infection with SARS-CoV-2 [15].

Previously, our and other group confirmed compromised activities of daily living in COVID-19 survivors in long-term care facilities [6, 7]. The current results indicate that mobility became limited in almost one-fourth of patients. The literature suggests that physical therapy plays an escalating role in managing post-COVID-19 deficits, especially in the context of long-term care. By adopting appropriate parameters and understanding the varied symptomology among patients, physical therapists can ameliorate patients' functional mobility and manage post-COVID-19 disease manifestations [16]. Most residents affected by long-COVID recover, totally or partially; however, deterioration of activities of daily living is most persistent [5]. This calls for improvement of decision-making and changing standards of care in these settings.

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This study had several constraints. First, the lack of strict inclusion criteria leads to a varied sample group. Moreover, it lacks the control group, i.e., with conditions other than COVID-19, which likely result in long-term symptoms and changes in functioning. Finally, it is difficult to distinguish between COVID-19 and the results of the concurrent lockdown measures and staff shortages, significantly affecting the population of residents. The study's results present the broad burden of COVID-19; however, it is challenging to diagnose post-COVID syndrome based on accumulated data. The C19-YRS was validated in the general population, and this was the first attempt to use it among residents of long-term care facilities. However, symptom- or functioning-based tools are important in diagnosing post-COVID; they must also incorporate biological features [17]. Living in institutionalized care is a crucial determinant of health that needs to be considered when defining post-COVID cases.

Conclusions

The functioning of long-term care facilities during the pandemic was overlooked and resulted in excessive mortality and post-COVID burden among survivors. This population is primarily affected by symptoms and deterioration in functioning after the illness. Since the burden of post-COVID is much larger in nursing homes and social care than in the community, these facilities require tailored support. Despite of mutational variability of the SARS-CoV-2, causing milder infections than at the beginning of the pandemic, and access to vaccines, long-term care facilities continue to be more prone to the disease and its consequences in the endemic phase.

Conflict of interest

None

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