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SELF-REPORTED URINARY INCONTINENCE DURING COVID-19 INFECTION AND AFTER RECOVERY: A PRELIMINARY REPORT WITH BRAZILIAN SURVIVORS

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HYPOTHESIS / AIMS OF STUDY

Several studies investigate the physical, psychological and social impact of COVID-19 infection in people who survived the disease. Among the physical sequelae, the musculoskeletal and joint systems are frequently affected, and muscle weakness is one of the most common symptoms. However, there is still no current evidence regarding the pelvic floor muscles function in COVID-19 survivors and it is not known the impact of the personal history of COVID-19 on urinary complaints.

Previous studies already reported the worsening of urinary incontinence (UI) among women in lockdown[1]. One hypothesis for this finding is the symptomatology of individuals affected by COVID-19, since the most common clinical manifestation among those infected is coughing. Besides, coughing and dyspnea are symptoms that are commonly reported after recovery by patients that had mild disease. Furthermore, the manifestation of these symptoms repeatedly can trigger pelvic floor muscle fatigue. In addition, COVID-19 virus seems to use the angiotensin-converting enzyme 2 (ACE2) as a host cell receptor, receptors that have a high expression in the small intestine and medium expression in the bladder. This factor could lead to a negative impact of the disease in the digestive and urinary systems.

Therefore, in this preliminary report, we aimed to specifically analyze the occurrence of UI before, during and after COVID-19 infection, and to report the prevalence of UI in the last three months in women and men who survived the disease.

STUDY DESIGN, MATERIALS AND METHODS

This is a cross-sectional study conducted in Brazil between December 2021 and March 2022. The inclusion criteria were Brazilian participants residing in national territory, aged 18 or more, with a personal history of COVID-19 and UI complains that could be reported before, during or after the disease, and that were recovery until three months. Those who did not fill completely the instruments used for the evaluation were excluded from this study. The data collection was performed using a semi-structured questionnaire available on Google Forms platform. The first part of this questionnaire contained questions related to sociodemographic information (i.e., age, marital status, level of education) and one question related to the personal infection by COVID-19, in which participants should answer when the last infection occurred. Sequentially, participants should answer one semi-structured question related to UI during COVID-19 infection, where they should report if they were incontinent before the COVID-19 infection or if they started to present the urinary symptom during or after the infection. Then, the current urinary symptoms were analyzed by the International Consultation on Incontinence Questionnaire - Short Form (ICIQ-SF) by identifying women who reported a urinary loss in the past four weeks in any of the following situations: before reaching the toilet, while sneezing or coughing, while sleeping or dressing and/or lost without any reason. The data analysis was performed using the SPSS software, version 21.0 (SPSS Inc., Chicago, IL, EUA), and are presented in frequency and percentage.

RESULTS

A total of 566 participants were included in the present study. The majority of participants were women, married and with more than 11 years of study (Table 1). One-hundred and sixteen (20.5%) participants were incontinent before COVID-19 infection, while 140 (24.7%) and 98 (17.3%) individuals associated the start of UI while they were infected and after they were recovered from COVID-19, respectively (Table 2). From the all sample, 212 participants (27.5%) were continent before, during and after recovery.

A higher percentage of participants that reported UI before, during or after COVID-19 infection were classified as current incontinent, according to the qualitative UI questions from ICIQ-SF (Table 2). From the continent participants before, during and after infection participants, 84 reported current UI.

INTERPRETATION OF RESULTS

The findings of the present study showed that a higher percentage of participants with UI before, during or after recovery of COVID-19 infection are still incontinent. These results highlight to health professionals, especially those who work in the urogynecology area, that survivors from COVID-19 may require assistance to treat urinary symptoms.

There are some possible justifications for these findings. The first one is related to the general weakness of the musculoskeletal system that could impact directly the pelvic floor muscles function. This factor could lead to urinary leak during stress situations. However, if the patient reported other impairments related to weakness, as balance dysfunctions or immobility, the individual could face some difficult to reach the bathroom during a desire to urinate, what could lead to urgency UI.

Furthermore, the sympatology of COVID-19, more specifically coughing, could contribute to UI complains, as the repetition of this symptom could cause fatigue of pelvic floor muscles and also repetitive microtrauma to this area. In addition, considering the synergism between the abdominal muscles and pelvic floor muscles, the implications and symptoms related to the respiratory system could also be associate with the UI: for example, some difficult to activate the diaphragm and to recruit synchronously the pelvic floor muscles during breathing and also during stress activities could lead to UI. Finally, patients infected by COVID-19 reported higher indices of anxiety and this symptom can be classify as a risk factor for symptoms of urgency UI[2].

Future studies should investigate the association between some variables that could possibly be related to UI symptoms that started during COVID-19 infection. In addition, factors related to the gravity of the COVID-19 should be include in future models, to analyze the association between the severity of the disease and current UI symptoms.

CONCLUDING MESSAGE

A higher percentage of survivors reported before, during or after COVID-19 infection are still incontinent. Health professionals should be aware of the continence status of individuals recovery from COVID-19.

FIGURE 1

Table 1. Characteristics of the sample (n=566).

| Variables | n (%) |
|-------------------------------|------------|
| Age# | 42.0±9.3 |
| Gender | |
| Female | 551 (97.3) |
| Masculine | 15 (2.7) |
| Marital status | |
| With conjugal life | 392 (69.3) |
| Without conjugal life | 174 (30.7) |
| Years of study | |
| Until 8 | 32 (5.7) |
| Between 9 and 11 | 58 (10.2) |
| More than 11 | 476 (84.1) |
| Last infection by COVID-19 | |
| Less than 1 month | 297 (52.5) |
| Between 1-3 months | 269 (47.5) |
| # mean and standard deviation | |

Table 1. Characteristics of the sample (n = 566).

FIGURE 2

Table 2. Frequency and percentage of UI symptoms before, during and after COVID-19 infection; and presence of current UI (n=354).

| Assessment of UI before, during or after recovery COVID-19 contamination n (%) | Current UI reported on the last month* n (%) |
|---|---|
| UI before contamination | 116 (20.5) |
| UI during contamination | 140 (24.7) |
| UI after recovery | 98 (17.3) |

UI=urinary incontinence

*% was calculated according the frequency and percentage reported by women during infection

Table 2. Frequency and percentage of UI symptoms before, during and after COVID-19 infection; and presence of current UI.

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