

Professional role of hospital physical therapy services against coronavirus infections

Atuação profissional no serviço hospitalar de fisioterapia diante das infecções por coronavírus

Actuación profesional de fisioterapeutas en un hospital ante los contagios por coronavirus

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ABSTRACT | During the COVID-19 pandemic, we observed an important growth of demands on healthcare providers. Delimited attributions for each position are important, aiming less burden and better care effectiveness. Physical therapists play a fundamental role in the care of patients with COVID-19 complications. This research analyzed physical therapist's role and knowledge about COVID-19 during the pandemic in a public hospital. This is a mixed cross-sectional study, with a quantitative descriptive and qualitative exploratory method, carried out in a public hospital in Goiânia. The physical therapists filled out an anamnesis form and a questionnaire with pre-structured questions about the attributions of physical therapy in the hospital environment. The population was composed of 13 professionals. Most considered oxygen therapy implementation (100%), INVASIVE and non-invasive ventilation management (100%), participation in orotracheal intubation (92.3%), airway aspiration (100%), extubation (92.3%), measurement of the orotracheal tube cuff pressure (92.3%), and replacement the mechanical ventilator filter (92.3%) as physical therapy assignments. Most professionals (46.15%) considered that these patients' mobilization must frequently be carried out. regarding COVID-19 AND their role in the pandemic. Confusion is still present regarding procedures related to the respiratory area in the hospital environment.

Keywords | COVID-19; Physical Therapy Specialty; Critical Care.

RESUMO | Diante da pandemia, houve um crescimento importante das demandas aos profissionais de saúde. É importante que haja delimitações das atribuições de cada cargo para diminuir a sobrecarga e melhorar a eficácia da

assistência. Os fisioterapeutas têm desempenhado papel fundamental no cuidado de pacientes com complicações da COVID-19. O objetivo da pesquisa foi analisar o conhecimento do fisioterapeuta sobre a doença e sobre sua atuação diante dela em um hospital público. Para isso, foi realizado um estudo transversal misto, com método quantitativo descritivo e qualitativo exploratório, em um hospital público de Goiânia. Os fisioterapeutas preencheram uma ficha de anamnese e um questionário com questões pré-estruturadas sobre as atribuições da profissão no ambiente hospitalar. A amostra foi composta por 13 profissionais. A maioria considerou como atribuições da profissão: implementação da oxigenoterapia (100%), manejo da ventilação mecânica invasiva e não invasiva (100%), atuação na intubação orotraqueal (92,3%), aspiração de vias aéreas (100%), extubação (92,3%), verificação da pressão de balonete do tubo orotraqueal (92,3%) e troca do filtro do ventilador mecânico (92,3%). Grande parte da amostra (46,15%) considerou que a mobilização desses pacientes deveria ocorrer frequentemente. Os profissionais apresentaram conhecimento em relação à COVID-19 e quanto às suas funções no enfrentamento da pandemia. No entanto, ainda há confusão em relação à responsabilidade de desempenhar alguns procedimentos referentes à área respiratória no ambiente hospitalar.

Palavras-chave | COVID-19; Fisioterapia; Cuidados Críticos.

RESUMEN | La pandemia produjo un aumento significativo de las demandas a los profesionales de la salud. Es importante que las atribuciones de cada puesto estén delimitadas para lograr una menor sobrecarga y mejor

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efectividad de la asistencia. Los fisioterapeutas jugaron un papel clave en el cuidado de los pacientes con complicaciones de esta enfermedad. La investigación tuvo como objetivo analizar el conocimiento de los fisioterapeutas sobre el COVID-19 y su actuación frente a la enfermedad en un hospital público. Este es un estudio transversal mixto, con método cuantitativo descriptivo y cualitativo exploratorio, que se realizó en un hospital público de Goiânia (Brasil). Los fisioterapeutas respondieron una ficha de anamnesis y un cuestionario con preguntas estructuradas previamente sobre las atribuciones de la profesión en el hospital. La muestra constó de 13 profesionales. La mayoría consideró como atribuciones profesionales la realización de oxigenoterapia (100%),

el manejo de ventilación mecánica invasiva y no invasiva (100%), la actuación en la intubación orotraqueal (92,30%), la aspiración de vías aéreas (100%), la extubación (92,30%), la medición de la presión del manguito del tubo orotraqueal (92,30%) y el cambio del filtro del ventilador mecánico (92,30%). La mayoría de la muestra (46,15%) consideró que la movilización de estos pacientes necesita ser frecuente. Los fisioterapeutas tenían conocimientos sobre el COVID-19 y sus roles en el enfrentamiento de la pandemia. Pero todavía presentaban una confusión en cuanto a la responsabilidad de realizar algunos procedimientos relacionados con el área respiratoria en el hospital.

Palabras clave | COVID-19; Fisioterapia; Cuidados Críticos.

INTRODUCTION

On March 11, 2020, the new disease caused by the SARS-CoV-2 coronavirus was considered a pandemic¹. The angiotensin-converting enzyme 2 (ECA2) is the virus main entry point into the human body. ECA2 is present in several cells, such as lung, intestinal, renal, and blood vessel tissue².

The infection can cause respiratory complications, culminating in possible acute respiratory distress syndrome (ARDS)³, with signs of pneumonia and ground glass found in imaging exams⁴. The disease can also result in cardiac and acute kidney injuries, septic shock, disseminated intravascular coagulation, neurological disorders, among other conditions⁴⁻⁶. The main clinical signs and symptoms in patients are fever, cough, myalgia, fatigue, expectoration, and dyspnea^{3,7,8}. Less common symptoms include nausea, vomiting, diarrhea, and headache, but some patients are asymptomatic^{7,8}.

Regarding treatment, the information is limited to suggest a different approach, compared to other critical patients⁹. Generally, symptom control is sought and the use of oxygen therapy/mechanical ventilation is recommended to control hypoxemia and acute respiratory failure^{9,10}.

During the COVID-19 pandemic, demands on healthcare providers escalated, with a consequent increase in physical and emotional overload, which may negatively reflect on health care^{11,12}. Therefore, it is important to delimitate the attributions of each professional to reduce exhaustion among health providers and achieve greater homogeneity in task division.

Physical therapy has played a fundamental role in the care of patients with COVID-19 complications^{13,14}. As of Resolution No. 402 of August 3, 2011, the Brazilian Federal Council of Physical Therapy and Occupational Therapy (COFFITO)¹⁵ began to discipline the professional specialty Physical Therapy in Intensive Care. However, several respiratory procedures are still not fully understood in the hospital environment, resulting in the publication of appellate decisions guiding the professional exercise of physical therapy, by 2016.

Thus, this research aimed to analyze the knowledge of physical therapists about COVID-19 and their performance in the face of the disease in a state hospital in Goiás.

METHODOLOGY

Study design

This is a mixed cross-sectional study, with a quantitative descriptive and qualitative exploratory method with methodological foundation in the Collective Subject Discourse (CSD)¹⁶. The research is linked to the Teaching and Research Department of a Brazilian public hospital.

Sample

The sample was selected for convenience, according to the availability and agreement of professionals working in the hospital, who signed an informed consent form.

Inclusion criteria were: professionals of both sexes, aged over 18 years, undergraduate in Physical Therapy, working at the institution during the data collection and providing health care for individuals suspected or diagnosed with COVID-19. Exclusion criteria were: professionals with unavailability for the study and conflict of interest with the research.

Materials and procedures

Firstly, the number of active employees in the management of the physical therapy service was verified in August and September 2020, to select individuals who fit the established inclusion criteria. Professionals from all areas of care in the hospital were selected: intensive care units (ICU), wards, and outpatient clinics. Among the 20 professionals in the hospital, five were absent due to pregnancy or maternity leave, and two had been hired recently and, therefore, had no experience in the care of COVID-19 patients in the hospital. The remaining professionals were personally invited to participate in the research. To ensure the safety of participants and researchers, in addition to not hamper the professionals' activities, a self-application questionnaire was chosen, and the research team was always available to answer possible doubts, whether in person or virtually.

Instruments

The following instruments were employed in the search:

- Anamnesis form: applied individually after signing the consent form, included the participant's personal and demographic data—such as name, date of birth, age, and time of profession—as well as questions about the participants' safety level regarding professional performance during the pandemic, considering a scale from 0 to 10, with 0 being the lowest safety level and 10 the highest;
- Questionnaire about the professional reality perceived in the hospital: it included pre-structured questions, elaborated by the research team, divided into five items. The first item requested a subjective description of the main characteristics of COVID-19. All subsequent items were objectively marked and raised questions about the following aspects: whether the participant considered physical therapy important during the

pandemic; what is the level of such importance on a scale ranging 0–10 (the higher the numerical value on the scale, the greater the importance); if participants considered the physical therapist's responsibility to act in oxygen therapy implementation or management, participation in orotracheal intubation, management of mechanical ventilation, aspiration of the upper and artificial airways, tracheal aspirate collection for culture examination, extubation, measurement of orotracheal tube cuff pressure, and replacement of mechanical ventilator filters. The last question referred to the frequency with which these patients should be mobilized (never, occasionally, frequently, or always).

Data analysis

Data transcription and processing were performed in an Excel spreadsheet®. Descriptive statistical analysis of the data was carried out with an additional program. Characterization of the demographic profile and the variables was performed by absolute (n) and relative (%) frequencies for categorical variables. Considering the sample size, inferential analysis was not carried out.

The statements analysis from open-ended question (opinion poll) was performed based on the analysis of the CSD, a data processing technique that describes and interprets social representations. It proposes to group—in empirical social research—extracts of similar meaning statements, written in the first person singular. In this study, the most prominent statements were also grouped¹⁶.

RESULTS

The sample consisted of 13 professionals, most females (92.3%). Most participants had specialization in the professional area (92.3%), worked in another institution (53.8%), and had a monthly family income above seven minimum wages (38.4%).

All professionals considered essential to take physical therapy in coping with COVID-19 and stated that they were well-informed about the disease through training at the institution itself or through online courses on the subject.

Figure 1 represents the participants' safety level, on a scale from 0 to 10, during the pandemic.

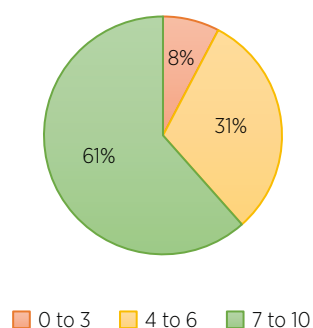


Figure 1. Physical therapists' safety level in hospital work during the COVID-19 pandemic

Table 1 shows the respondents' perspective on their functions related to the care of COVID-19 patients.

Table 1. Physical therapists' perspective regarding their attributions related to the care of COVID-19 patients, Goiânia (GO), (n=13)

Physical therapists must:	n	(%)
Act in oxygen therapy implementation	13	100
Act in exclusive oxygen therapy implementation	0	0
Act in NIV implementation	13	100
Act in orotracheal intubation alongside the team	12	92.3
Act in IMV adjustment	13	100
Be responsible for IMV adjustment	04	30.76
Act on airway aspiration	13	100
Be responsible for airway aspiration	0	0
Perform extubation	12	92.3
Perform tracheal aspirate collection for culture examination	5	38.46
Check cuff pressure	12	92.3
Be responsible for cuff pressure	1	7.69
Replace the MV filter	12	92.3
Be responsible for replacing the VM filter	1	92.3

NIV: noninvasive ventilation; IMV: invasive mechanical ventilation; MV: mechanical ventilation.

Regarding patient mobilization, 46.15% of the sample considered that it should be frequently performed, while 30.76% considered that it should be occasionally performed.

In the open-ended question about COVID-19, all participants described signs and symptoms of the disease, with the most mentioned being fever, cough, headache, myalgia, anosmia, ageusia, fatigue/asthenia, nasal congestion/coryza, sore throat, and dyspnea. Still, 92.3% of the participants mentioned the etiology of the disease, but only two (15.38%) mentioned the main findings of COVID-19 imaging tests. Aspects related to diagnosis (7.69%) and history of the pandemic (7.69%) were rarely described in this study, with only one mention each.

DISCUSSION

Since the onset of the pandemic, several documents have been published containing practical recommendations for the physiotherapeutic approach of patients suspected or diagnosed with COVID-19^{13,17-20}. Due to national differences in the regulation of the profession, each recommendation is expected to be adapted according to the country's reality.

Most participants (61%) reported a high safety level regarding their performance in the hospital during the pandemic. This result may be associated with the knowledge they have shown about COVID-19 and the importance of the professional class in this challenge, as well these professional' access to updates on the disease through training at the institution and/or online courses on the subject.

Corroborating the findings of this study, according to Resolution No. 402/2011 of COFFITO¹⁵, the physical therapist's function is defined as the management of the artificial or natural airway; management of spontaneous, invasive or noninvasive ventilation; titration of oxygen therapy; and weaning and extubation of patients on mechanical ventilation (MV). In hypoxemia cases, the patient needs oxygen support, and may also require noninvasive mechanical ventilation (NIV), continuous positive airway pressure (CPAP) therapy, high-flow nasal oxygenation or, in the absence of a rapid positive response, orotracheal intubation, and ICU admission²⁰.

Regarding the participation alongside the team in orotracheal intubation, most participants in this study (92.3%) highlighted this attribution as part of the physical therapist's functions. The Clinical Protocols and Physical Therapy Guidelines (PCDF) in coping with COVID-19¹³ recommend that the therapist act in this process, supporting the team, in accordance with the research findings.

The PCDF also mentions the importance of the correct use of filters on the mechanical ventilator, although it does not provide clarification regarding the changes¹³. We could not find any legal basis specifying which professional was responsible for this function. Nevertheless, 92.3% of the participants in the sample considered it a physical therapists' responsibility.

Regarding the collection of tracheal aspirate for culture examination, 38.46% of professionals in this study considered it the physical therapist's function. However, in 2016, appellate decision No. 477²¹ was published, defining that the collection of isolated tracheal secretion for culture is not a physical therapist responsibility.

Similarly, measurement of the orotracheal tube cuff pressure is a common practice of physical therapists in hospitals, as verified in our study. Nevertheless, only 7.69% of study participants considered this procedure to be exclusive to the profession. Righetti et al.¹⁴ elaborated practical recommendations for physical therapy in COVID-19 patients, emphasizing the importance of maintaining adequate cuff pressure to minimize the risk of exhaling aerosols, and suggest that this is attributed to the physical therapist.

However, Resolution No. 639, published on May 8, 2020 by the Federal Nursing Council²², provides for the competencies of nurses in the care of patients on mechanical ventilation in the extra and intra-hospital environment, concluding that monitoring the pressure of the prosthesis cuff at safe levels is the nurses' responsibility. We could not find any document attributing this function to the physical therapist.

In this study, we could not find any consensus regarding the mobilization of patients suspected or diagnosed with COVID-19. Most participants (46.15%) considered that these individuals' mobilization should be frequently performed.

Prolonged ICU stays are known to cause deleterious effects that culminate in functional impairment stemming not only from acute disease, but also from long immobilization periods²⁰. One of the main functions of hospital physical therapy is to maintain or recover hospitalized patients' functioning. As for mobilization, according to the PCDF¹³, in the initial stage of the disease, functional maintenance should be stimulated without, however, significantly increasing metabolic demand. Critically ill patients should be encouraged to regain their functioning as soon as possible.

The article proposed a reflection on the performance of hospital physical therapy during the COVID-19 pandemic. We expect that, by ensuring an adequate knowledge level to healthcare providers regarding this disease, as well as their own functions in this scenario, it becomes possible to organize a more effective and less burdening interdisciplinary action of individuals working on the front lines.

This research is biased by the sampling and the self-selection methods, with a non-representative sample or insufficient sample size. The small sample size prevents results generalization. Notably, the applied questionnaire had no precedent in the literature and the authors elaborated it based on the perception of professional reality in the hospital and its validation in future studies is necessary.

Moreover, the research was carried out in a public hospital, during the transitional period of the pandemic and does not correspond to a field hospital. Studies with similar objectives could not be found in the literature, making it impossible to compare the outcomes. The period of data collection (from August to October 2020) can be cited as another limitation, since scientific evidence regarding the pandemic grows every day.

CONCLUSION

The results of this study suggest that physical therapists of a public hospital in Goiânia have knowledge about the main aspects related to COVID-19 and their functions in coping with the pandemic. However, we found some confusion regarding the responsibility over some procedures in the hospital, namely: collection of tracheal aspiration for culture, measurement of the orotracheal tube balloon pressure and replacement of mechanical ventilator filters. We hope our results may improve knowledge on the subject, paving the way for continued training, as well as promoting more efficient and integrated care among health teams to treat COVID-19 patients.

We suggest that expanding the survey of physical therapists' service across hospitals would aid research and clinical practice to build a consensus on their role in the COVID-19 pandemic.

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