

Performance of the intensivist physiotherapist during the COVID-19 pandemic: Challenges and improvements in clinical practice

Atuação do fisioterapeuta intensivista durante a pandemia de COVID-19: Desafios e modificações na prática clínica

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ABSTRACT | INTRODUCTION: The disease caused by the New Coronavirus (SARS-CoV-2) generated a growing flow of infected patients who needed specialized care in intensive care, greatly impacting the Health System, directly impacting the experience of Intensive Care Physiotherapists fundamental professionals in this assistance. **OBJECTIVE:** To verify changes in the clinical practice of the intensive care physical therapist during the COVID-19 Pandemic and to identify challenges faced during the care of infected patients. **MATERIALS AND METHODS:** That is an exploratory, transversal, and quantitative field research carried out from February to April 2021, with intensive care physical therapists from two public hospitals (one municipal and one state) in the city of Fortaleza. A calculation of the flow of physiotherapists working in these units was performed, estimating a sample of 71 professionals to compose the study. The Intensivist Physiotherapists who helped patients with COVID-19 and linked with the hospitals participated in the research. Physiotherapists in the role of residents, trainees, and preceptors present were excluded. For data collection, an online form made possible by the Google Forms platform was used, composed of objective questions related to the professional's data, their infection by COVID-19, presence of risk factors, changes in clinical practice during care, challenges faced, situations experienced and safety during critical patient care with COVID-19. Data were tabulated using the Software Statistical Package for the Social Sciences (SPSS), version 20.0. Descriptive statistics with absolute and relative frequencies were used. **RESULTS:** 59 intensive care physical therapists working on the front line against COVID-19 participated in the study; of these, 40.6% were infected with the SARS-CoV-2 virus. Improvement in the management of mechanical ventilation (86.4%) and better integration with the multidisciplinary team (62.7%) were the main changes reported. Among the challenges faced during care, the completely new context (89.9%) and witnessing painful experiences of patients (76.3%) were the most striking. **CONCLUSION:** The Pandemic provided intensive care physical therapists with new challenges and changes in clinical practice, requiring updating, implementation of new practices, and greater interaction in a multidisciplinary team.

KEYWORDS: Elderly. COVID-19. Quality of life. Functionality. Physiotherapy. Post-covid-19.

RESUMO | INTRODUÇÃO: A doença causada pelo Novo Coronavírus (SARS-CoV-2), gerou um fluxo crescente de pacientes infectados que necessitaram de atenção especializada em terapia intensiva, impactando sobremaneira o Sistema de Saúde, repercutindo de forma direta na experiência de Fisioterapeutas Intensivistas, profissionais fundamentais nessa assistência. **OBJETIVO:** Verificar modificações na prática clínica do fisioterapeuta intensivista durante a Pandemia de COVID-19 e identificar desafios enfrentados durante assistência aos pacientes infectados. **MATERIAIS E MÉTODOS:** Trata-se de um estudo de campo, exploratório, transversal e quantitativo, realizado de fevereiro a abril de 2021, com fisioterapeutas intensivistas de dois hospitais públicos (um municipal e outro estadual) da cidade de Fortaleza. Foi realizado um cálculo do fluxo de fisioterapeutas atuantes nessas unidades, estimando-se uma amostra de 71 profissionais para compor o estudo. Participaram da pesquisa os Fisioterapeutas Intensivistas que realizaram assistência a pacientes com COVID-19 e que possuíam vínculo com os referidos hospitais. Foram excluídos os fisioterapeutas na função de residentes, estagiários e preceptores presentes. Para coleta de dados utilizou-se formulário on-line viabilizado pela plataforma Google Forms, composto por perguntas objetivas relacionadas aos dados do profissional, infecção destes por COVID-19, presença de fatores de risco, modificações na prática clínica durante assistência, desafios enfrentados, situações vivenciadas e segurança durante atendimento ao paciente crítico com COVID-19. Os dados foram tabulados através do Software Statistical Package for the Social Sciences (SPSS), versão 20.0. Utilizou-se estatística descritiva com frequências absolutas e relativas. **RESULTADOS:** Participaram do estudo 59 fisioterapeutas intensivistas atuantes na linha de frente contra a COVID-19; destes, 40,6% foram infectados pelo vírus SARS-CoV-2. As principais modificações relatadas foram melhora no manejo da ventilação mecânica (86,4%) e melhor integração com equipe multidisciplinar (62,7%). Dentre os desafios enfrentados durante a assistência, o contexto completamente novo (89,9%) e o testemunho de experiências dolorosas de pacientes (76,3%) foram os mais marcantes. **CONCLUSÃO:** A pandemia proporcionou aos fisioterapeutas intensivistas novos desafios e modificações na prática clínica, requerendo atualização, implantação de novas práticas e maior interação em equipe multidisciplinar.

PALAVRAS-CHAVE: Fisioterapeutas. Unidades de Terapia Intensiva. COVID-19.

Introduction

The disease caused by the new coronavirus (COVID-19) was initially identified in December 2019 in the city of Wuhan, Hubei Province, China.¹ After the first report, in less than four months, it spread throughout the world, leading the Emergency Committee of the World Health Organization (WHO) to declare an International Public Health Emergency on January 30, 2020, and as a pandemic situation, on March 11, 2020.^{2,3}

People affected by this disease have heterogeneous symptoms, ranging from asymptomatic infections to severe conditions, and the literature highlights the main ones: fever (89%), cough (68%), fatigue (38%), production of secretions (34%) and shortness of breath (19%).^{4,5} It is important to note that the severity of the disease is intrinsically related to the presence of previous conditions, such as obesity, advanced age, and some comorbidities.^{6,7} According to the World Health Organization (WHO), 80% of infected individuals are asymptomatic or oligosymptomatic, 15% develop severe symptoms, and a smaller percentage present critical.⁸

Intensive Care Units (ICUs) have the main purpose of offering continuous care and advanced support to critically ill patients at risk of death.³ In the case of COVID-19, the increasing flow of critical patients in this environment and who need more specialized care increases the risk of collapse of the health system, which is generally overloaded [2,9]. In this context, the multi-professional health team is of paramount importance in the current pandemic scenario and, around the 70s, the physical therapist was inserted in these teams, evolving rapidly and going through a process of subdivision into specialties, such as Physiotherapy in Intensive Care, which was regulated by Resolution no. 402/2011, of COFFITO.^{5,10,11,12}

The COVID-19 pandemic directly impacted the experience of these professionals, and the search for knowledge is constantly being built and rebuilt, demanding that professionals always keep up to date, rethinking teamwork as a whole, and implement new therapeutic approaches.^{9,13} These professionals in the current scenario face an excessive workload, generating a great concern about maintaining the quality of care processes.^{9,14}

Therefore, the objective of this study was to verify the changes in the clinical practice of Intensive Physiotherapists during the COVID-19 pandemic, as well as to identify the challenges faced in assisting the population of critically ill patients infected with SARS-CoV-2.

Materials and methods

This is an exploratory, cross-sectional field research with a quantitative approach, carried out from February to April 2021, with Intensive Physiotherapists working on the front line in the fight against COVID-19 in two public hospitals in the city of Fortaleza, one from the state network and the other municipal, both a reference in care for Covid-19.

The study was approved by the Research Ethics Committee of the public hospitals mentioned with records nº 4,476,987 and nº 4,578,191. The norms and guidelines of Resolution 466/12 of the National Health Council/Ministry of Health were obeyed.¹⁵ A calculation of the flow of physiotherapists working in these units was performed, estimating a sample of 71 professionals to compose the study. The Intensivist Physiotherapists who provided assistance to patients with COVID-19 and linked with the abovementioned hospitals participated in the research. Physiotherapists in the role of residents, trainees, and preceptors present were excluded.

Data collection was carried out through a questionnaire developed by the researchers, based on previous articles on the subject in question.^{2,14,16,17} It consisted of objective questions about professional data, their infection by COVID-19, presence of risk factors, changes in clinical practice during care, challenges faced, situations experienced, and safety during care for critically ill patients with COVID-19.

Due to the COVID-19 pandemic and the imminent contamination risks, the research took place virtually, through Google Forms. The professionals were invited to participate in the research through invitations sent to the heads of service, and the link (<https://forms.gle/TcB1UFkdAkweGFcx8>) was made available through the Whatsapp groups of their respective Hospitals. The Free and Informed Consent Term (ICF) was made available online on the home

page, and the participant only had access to the data collection instrument if they agreed to participate in the research. Participants had ten days from sending the questionnaire to answer it anonymously and voluntarily.

The collected data were initially tabulated in Excel 2017 software and then transferred to SPSS statistical software (Statistical Package for the Social Sciences) version 20.0. Descriptive statistics were used with absolute and relative frequencies, with results demonstrated through figures and tables.

Results

Fifty-nine intensive care physical therapists participated in the study, 49 (83.0%) were female. Of the participating professionals, 42 (71.1%) are from the municipal network. Table 1 shows data referring to the time of training and working in the ICU, as well as the maximum level of qualification and the number of ICUs in which they work.

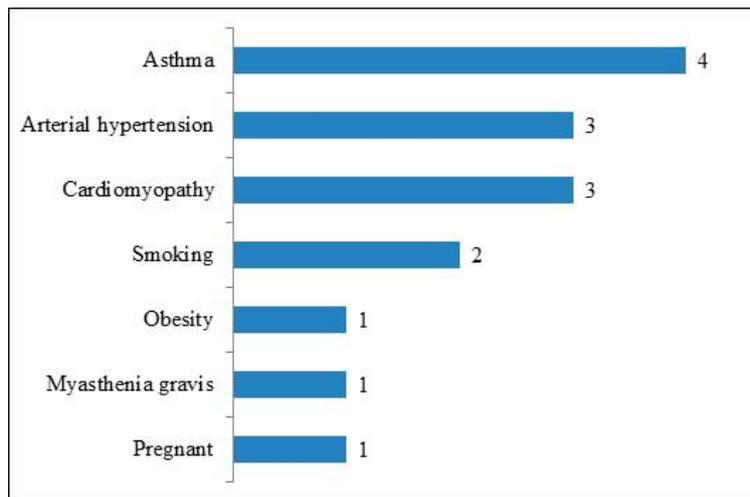
Table 1. Time of training and work in the ICU, maximum degree level and number of ICUs in which they work. N=59

	Hospital		Total N(%)
	Municipal	State	
Graduation time			
1 to 4 years	4 (9.5%)	6 (35.3%)	10 (16.9%)
5 to 10 years	17 (40.5%)	4 (23.5%)	21 (35.6%)
11 to 15 years	9 (21.4%)	2 (11.8%)	11 (18.6%)
16 to 20 years	6 (14.3%)	0 (0.0%)	6 (10.2%)
More than 20 years	6 (14.3%)	5 (29.4%)	11 (18.6%)
Working time in ICU			
Joined during the Pandemic	1 (2.4%)	4 (23.5%)	5 (8.5%)
1 to 4 years	6 (14.3%)	5 (29.4%)	11 (18.6%)
5 to 10 years	23 (54.8%)	3 (17.6%)	26 (44.1%)
11 to 15 years	6 (14.3%)	1 (5.9%)	7 (11.9%)
16 to 20 years	4 (9.5%)	1 (5.9%)	5 (8.5%)
More than 20 years	2 (4.8%)	3 (17.6%)	5 (8.5%)
Maximum degree level			
Graduate	1 (2.4%)	5 (29.4%)	6 (10.2%)
Specialist	23 (54.8%)	8 (47.1%)	31 (52.5%)
Master	14 (33.3%)	4 (23.5%)	18 (30.5%)
Doctor	4 (9.5%)	0 (0.0%)	4 (6.8%)
Number of ICU in which it operates			
1	14 (33.3%)	7 (41.2%)	21 (35.6%)
2	21 (50.0%)	5 (29.4%)	26 (44.1%)
3	4 (9.5%)	5 (29.4%)	9 (15.3%)
4	3 (7.1%)	0 (0.0%)	3 (5.1%)

Descriptive statistics; ICU - Intensive Care Unit
Source: The authors (2021).

Regarding the infection by COVID-19, 24 professionals (40.6%) reported having been infected by the SARS-CoV-2 virus (among these, 17 from the municipal network and 7 from the state network). With regard to risk factors for COVID-19, 15 (23.7%) professionals reported having some factor, which is shown in Figure 1.

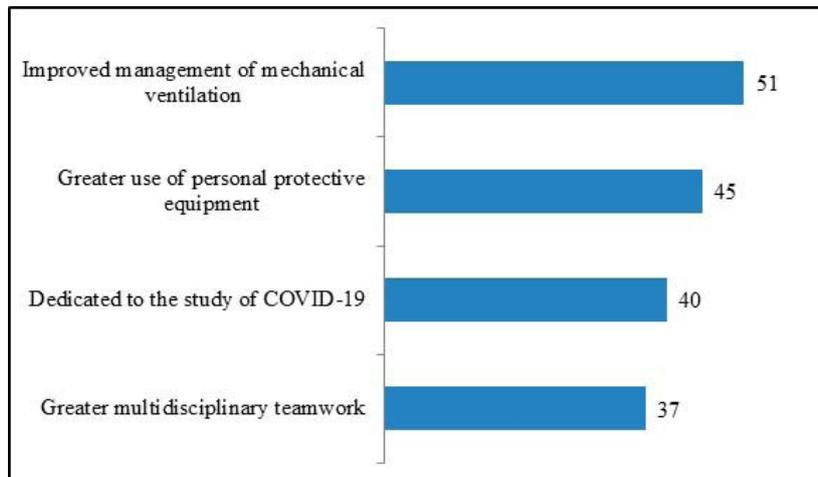
Figure 1. Risk factors reported by professionals participating in the study. N=15



Risk factors reported. N=15.
Source: The authors (2021).

In Figure 2, there are changes in the clinical practice of Intensive Physiotherapists during the care of patients with COVID-19. The most reported by the study participants are the improvement in the management of mechanical ventilation and the greater use of personal protective equipment.

Figure 2. Changes in clinical practice during COVID-19 patient care. N=59



Changes in clinical practice during the care of patients with COVID-19. N=59. N=15.
Source: The authors (2021).

Table 2 shows the main challenges faced by intensive care physical therapists during care for patients infected with the new coronavirus, the most cited being: a completely new context, as the treatment of the disease, is still poorly understood by 53 (89.8%) professionals, witnessing highly painful experiences of patients by 45 (76.3%) and exhausting workload to meet the population demand for health care reported by 41 (69.5%) professionals.

Table 2. Challenges faced by intensive care physical therapists in caring for patients with the new coronavirus. N=59

	Hospital		Total
	Municipal	State	
Completely new context	39 (92.9%)	14 (82.4%)	53 (89.8%)
Exhaustive workload	31 (73.8%)	10 (58.8%)	41 (69.5%)
Used aerosol-generating equipment	11 (26.2%)	8 (47.1%)	19 (32.2%)
Witnessed painful experiences of patients	30 (71.4%)	15 (88.2%)	45 (76.3%)
Witnessed large-scale deaths	27 (64.3%)	12 (70.6%)	39 (66.1%)
Needed to perform resource allocation	9 (21.4%)	1 (5.9%)	10 (16.9%)

Challenges faced by intensive care physical therapists in caring for patients with the new coronavirus. N=59
Source: The authors (2021).

Table 3 describes the results referring to situations experienced by intensive care physical therapists during the Covid-19 Pandemic, with the most reported by municipal professionals being the removal of family members and discrimination, and by state physical therapists the removal of family members and the triggering/intensification of anxiety.

Table 3. Situations experienced by intensive care physical therapists during the COVID-19 Pandemic. N=59

	Hospital		Total
	Municipal	State	
Discrimination against health professionals	20 (47.6%)	7 (41.2%)	27 (45.8%)
Had to get away from family members	33 (78.6%)	12 (70.6%)	45 (76.3%)
Expulsion from public transport	1 (2.4%)	2 (11.8%)	3 (5.1%)
Triggering or intensifying anxiety symptoms	18 (42.9%)	10 (58.8%)	28 (47.5%)
Loss of teammates	6 (14.3%)	9 (52.9%)	15 (25.4%)

Situations experienced by intensive care physical therapists during the COVID-19 Pandemic. N=59. Descriptive statistics.
Source: The authors (2021).

Regarding safety to care for patients with Covid-19, most 55 (93.2%) professionals reported that, in the first admissions of patients infected with Covid-19, they did not feel safe during care and only 4 (6.8%) participants reported feeling safe.

Discussion

The objective of this study was to verify the changes in the clinical practice of Intensive Physiotherapists during the COVID-19 pandemic, as well as to identify the challenges faced in assisting the population of critically ill patients infected with the SARS-CoV-2 virus. In the epidemiological bulletin of IntegraSUS¹⁸, updated on November 12, 2021, 258,497 cases and 9,802 deaths were confirmed in the city of Fortaleza. On November 8, the Ministry of Health¹⁹ confirmed 152,147 cases of Covid-19 among health professionals, with Physiotherapists in seventh place with 6,001 cases. In the present study, 40.6% of the Physiotherapists reported having been infected by this disease.

Studies report that the main route of transmission of COVID-19 is through aerosol, with health professionals, including the physical therapist, at greater risk of contamination due to occupational exposure during the care of suspected or confirmed patients.^{20,21} In addition, they are constantly exposed to aerosol-generating procedures, such as endotracheal intubation, extubation, non-invasive ventilation, nebulizer treatments, and bronchoscopy.^{20,22} A study carried out by Liu et al.¹⁶, with 30 health professionals from China infected by Covid-19, reported that the main reasons for their infection in the hospital environment were ineffective disinfection and protection measures, the need for closer contact with patients in critical condition and excessive fatigue, triggering a drop in immunity.

Among the changes in clinical practice, the participants reported that there was greater work together with the multidisciplinary team. About this finding, it is known that the multi-professional and inter-organizational relationship should be prioritized in the hospital environment in order to provide more efficient and higher quality care for patients, focused on the needs of each individual.^{16,22} Palacios-Ceña et al.¹⁷ also observed greater collaboration between the various specialties on behalf of the patient in their study with physical therapists working in the COVID-19 pandemic.

In our analysis, 86.4% of participants reported an improvement in the management of mechanical ventilation in patients with COVID-19. In situations of public calamities, such as the outbreak of SARS-COV-2, there is a significant increase in the need for physical therapists to work in the ICU, with the main purpose of maintaining adequate ventilation in these patients, who often require invasive mechanical ventilation.²⁴ In this sense, a document published by the Brazilian Association of Respiratory Physical Therapy (ASSOBRAFIR) presents to the physical therapist some important ventilation strategies for the management of mechanical ventilation, among them the tidal volume initially set at 6 ml/kg, the driving pressure lower than 15 cmH₂O and pressure plateau less than or equal to 30 cmH₂O.²⁵

As for the challenges faced during the care of the patient with COVID-19, our results reveal that 89.8% of the participants reported facing a completely new context, and 67.8% reported the need to dedicate

more time to study this pathology, considering that it is a disease that is still poorly understood. Given this scenario, Carvalho and Kundsinn²⁶ emphasize the training of professionals to face the covid-19. In this context, ASSOBRAFIR published several documents with assistance recommendations with the main objective of training professionals in the management of this assistance.^{24,25} In China, professionals interviewed by Liu et al.¹⁶ needed to draw on previous clinical experiences and learning through exploration, taking into account that the treatment of COVID-19 is not well recognized.

In addition, the exhaustive workload to meet the demand for care was observed in our results as well as the greater use of PPE. Oliveira et al.¹³ point out that work overload can be an important factor in triggering problems such as excessive stress, anxiety, and insecurity. In the study by Palacios-Ceña et al.¹⁷, the strenuous workload together with the need to spend long periods with PPE was a great personal and professional challenge, a fact also observed by Liu et al.¹⁶ in a study with Doctors and Nurses from Hospitals in the province of Hubei and by Oliveira et al.²⁷ with health professionals from a hospital in the metropolitan region of Rio de Janeiro.

Another remarkable result observed in the present study was the professionals' report of witnessing highly painful experiences of patients. In a study with a qualitative approach developed by Paula et al.²⁸, in order to understand the reactions and feelings of professionals on the front line of care for patients with suspected COVID-19 admitted to a University Hospital, demonstrated that they experience a significant number of suffering and death. They also emphasized that although they end up linking the patient's death with a therapeutic failure and not as part of life, which can trigger anxiety and anguish symptoms. Another important finding was the intensification of symptoms of anxiety, depression, stress, and the need to withdraw from family members.

Regarding the safety of caring for patients with COVID-19, most professionals (93.2%) reported insecurity in the first admissions of patients infected with COVID-19. A similar result was observed by Ditwiler et al. [²⁹], showing that uncertainty was a feeling experienced by research respondents, who related this experience to the lack of evidence about

the disease and its transmission, low availability of adequate PPE, and the need to use them for a long time. Our results corroborate what was discussed by other studies, which reported the lack of trust and safety during the first visits with patients infected with the SARS-COV-2 virus.^{30,31}

The COVID-19 pandemic limited interviews with physical therapists due to the imminent risk of contamination. The hospitals in question did not allow people other than front-line professionals, requiring data collection to occur through Google Forms, thus reducing the sample size. Other limiting factors were the non-investigation of the reasons that triggered the infection of the research participants and the absence of a validated questionnaire for this investigation.

In the pandemic context, Intensive Physiotherapists faced new challenges and a greater complexity of their work in the hospital setting, playing a fundamental role throughout the patient's stay in the ICU. Thus, it is suggested to carry out more studies related to the physical therapist's role during the COVID-19 pandemic.

Conclusion

The changes in clinical practice most reported by the physical therapists who participated in the research were the improvement in the management of mechanical ventilation in patients with COVID-19 and the greater work together with the multidisciplinary team.

The main challenges reported during the care of the patient infected with SARS-COV-2 were a completely new context, exhausting workload, intensification of anxiety symptoms, witnessing highly painful experiences of patients, and insecurity during the first visits.

Authors' contributions

Viana CO and Viana MCC participated in the conception, design, search, and statistical analysis of research data, interpretation of results, writing the scientific article, and submission of the scientific article. Pombo CMN participated in the collection and analysis of data. Morais MCS and Dantas MMP participated in the writing, conception, and design.

Conflicts of interest

No financial, legal, or political conflicts involving third parties (government, companies, and private foundations, etc.) were declared for any aspect of the submitted work (including, but not limited to grants and funding, participation in an advisory board, study design, preparation manuscript, statistical analysis, etc.).

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