

hospitalized for COVID-19 can identify the persistence of symptoms and exercise intolerance.

Objectives: To compare the exercise capacity and physiological responses of individuals hospitalized for COVID-19 using the 6MST, at 30 days and 12 months after hospital discharge.

Methods: A longitudinal study was conducted with individuals hospitalized for COVID-19 and evaluated at two-time points: 30 days after hospital discharge and 12 months after hospital discharge. The 6MST was applied with monitoring of vital signs (blood pressure - BP, heart rate - HR, and peripheral oxygen saturation - SpO2) and recording of perceived pain/fatigue in the lower limbs and respiratory fatigue. At the end of the test, the number of steps executed was recorded to establish the individual's exercise capacity and to identify the percentage of the number of steps achieved according to predicted values for sex, age, height, and weight.

Results: Twenty-three individuals were evaluated, and a significant difference was found in the 6MST performance ($p \leq 0.05$), with a higher number of steps recorded in the evaluation after 12 months of hospital discharge in 82.6% of individuals. Regarding vital signs, there was a statistically significant difference ($p \leq 0.05$) in SpO2 at the peak of the 6MST, with better saturation in the evaluation performed after 12 months of hospital discharge. There was a moderate positive correlation ($R=0.420$, $p \leq 0.046$) between a worse 6MST performance (evaluated by the number of steps) in individuals who required intensive care. There was no statistically significant difference ($p \leq 0.05$) in HR and SpO2 at the peak of the test and in the first minute of recovery.

Conclusion: The exercise capacity verified by the 6MST performance in individuals who were hospitalized and received intensive care due to COVID-19 is significantly lower in the first days after hospital discharge, compared to a period of 12 months after discharge. The 6MST performance was better after 12 months of hospital discharge, indicating improvement in exercise tolerance in 82.6% of individuals. The mean SpO2 measured at the peak of the 6MST was lower in the evaluation at 30 days compared to the assessment at 12 months after hospital discharge. It may be related to lower exercise capacity in individuals affected by COVID-19.

Implications: It is necessary to monitor these individuals affected by COVID-19, and when indicated, they should be included in a pulmonary rehabilitation program with individualized physical training prescription, promoting improvement in exercise capacity and reduction of persistent symptoms.

Keywords: COVID-19, Physiotherapy, Step Test

Conflict of interest: The authors declare no conflict of interest.

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IMPACT OF PHYSICAL ACTIVITY LEVEL ON RESPIRATORY MUSCLE STRENGTH IN PATIENTS WITH POST-COVID-19 SYNDROME

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Background: Patients who survive COVID-19 may experience manifestations after the acute phase of the disease. This condition is known as "long COVID syndrome" and can occur due to complications from

hospitalization, sequelae from the acute phase, and other related mechanisms. Patients who are hospitalized, both active and sedentary, may experience loss of muscle mass, including the respiratory muscles. It is known that active individuals have values of Maximal Inspiratory Pressure (MIP) above the population average, which can minimize the damage of muscle loss during hospitalization.

Objectives: To verify if the level of physical activity prior to hospitalization has an impact on the inspiratory muscle strength of patients with long-term COVID-19.

Methods: This is a retrospective study based on a database of a rehabilitation project for patients with long-term COVID-19. The sample consisted of adults from the Midwest region in Brazil diagnosed with COVID-19 who presented persistent symptoms for at least 4 weeks after the onset of symptoms. The patients considering the physical activity were classified as sedentary, irregularly active, and active. MIP was obtained through manovacuometry according to the protocols of the European Respiratory Society/American Thoracic Society. The values obtained were compared with those predicted by Pessoa et al. Normality was evaluated by the Shapiro-Wilk test. The Kruskal-Wallis test was used to assess the difference between the median of the physical activity level groups.

Results: Data from 47 patients were evaluated, with 59.6% female ($n=28$), mean age of 54.3 ± 10.9 years, weight of 82.2 ± 14.9 kg, height of 163.8 ± 9.3 cm, and 24.2 ± 18.7 days of hospitalization. 63.8% ($n=30$) of patients were sedentary, 17.0% ($n=8$) were irregularly active, and 19.1% ($n=9$) were physically active. The mean MIP obtained was 76.7 ± 25.6 ($85.0 \pm 28.5\%$ of predicted). There was no difference between the groups in the MIP obtained ($p=0.80$) and in the percentage of predicted ($p=0.90$).

Conclusion: The level of physical activity prior to hospitalization did not impact the respiratory muscle strength of patients with long-term COVID-19. Other factors, such as the number of days hospitalized and physiotherapeutic intervention during hospitalization, have an impact on the maintenance or loss of respiratory muscle strength. As a limitation of the study, the number of days for evaluation after the initial infection is highlighted.

Implications: This analysis reinforces the need to prescribe respiratory muscle training in the hospital environment for all patients, regardless of their prior physical activity history.

Keywords: Maximal Respiratory Pressures, Post-Acute COVID-19 Syndrome, Sedentary Behavior

Conflict of interest: The authors declare no conflict of interest.

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CLINICAL-EPIDEMIOLOGICAL PROFILE OF HOSPITALIZED CHILDREN IN PEDIATRIC INTENSIVE CARE UNIT WITH PHYSIOTHERAPY

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Background: The Pediatric Intensive Care Unit of philanthropic public hospitals belonging to the Unified Health System serves children with the most varied pathologies, clinical and surgical, being a reference for many services in the metropolitan region. Technological advances in health and the improvement of public policies in the prevention, control, and fight against child injuries gradually contribute to reducing infant mortality rates.

Objectives: To identify the epidemiological profile and clinical evolution of children and adolescents hospitalized in the Pediatric Intensive Care Unit of a reference hospital in Natal/RN in physiotherapeutic follow-up.

Methods: Descriptive and retrospective study carried out at the Pediatric Intensive Care Unit of the Hospital Infantil Varela Santiago (reference in Neurosurgical and Oncological care), Natal/RN, through quantitative analysis of data from medical records of children between 0 and 15 years old in physiotherapeutic follow-up in the first quarter of 2023 (January to March). Age, sex, evolution to discharge/death, length of hospital stays, need for mechanical ventilation, and duration of mechanical ventilation were obtained by descriptive and retrospective analysis of medical records, with categorical variables expressed in absolute frequencies and percentages and continuous variables, presented as averages and standard deviation.

Results: Sixty-three (63) children were admitted to Physiotherapy, 34 boys (53.96%) with a mean age of 3.77 ± 4.29 years. The length of stay in the ICU was 14.3 ± 22.8 days; 21 children (33.33%) required invasive mechanical ventilation, with a mean IMV time of 14.8 ± 17.3 days. As an outcome, 15 children (23.80%) were transferred to other services or discharged straight home, 39 (61.90%) were discharged to the ward, 6 (9.52%) died, and 3 (4.76%) remained hospitalized.

Conclusion: We observed a predominance of male children in this Intensive Care Unit, with an average age of 3.7 years. The length of stay can be correlated with the complexity of the Unit in question (neurosurgical and oncology children), with a mortality rate below 10%.

Implications: Knowledge of the profile of this Unit implies improvement in care, optimization of treatment, reduction of expenses, and length of stay during hospitalization.

Keywords: Pediatric Intensive Care Units, Health Profile, Physical Therapy

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EFFECTS OF NA OPTIMIZED APPROACH TO HOME-BASED RESPIRATORY CARE IN PATIENTS WITH DUCHENNE MUSCULAR DYSTROPHY: STUDY PROTOCOL FOR CLINICAL TRIAL

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Background: Duchenne Muscular Dystrophy (DMD) is an inherited neuromuscular degenerative disease that leaves muscle fibers more susceptible to mechanical stress due to muscle contraction, leading to progressive muscle weakness resulting in decreased lung ventilation and an ineffective cough, favoring the onset of complications such as respiratory failure, the main cause of mortality. Management of patients with DMD aims to maintain respiratory function and involves all aspects of care, including at home.

Objective: This study aims to investigate the effects of an optimal home-based respiratory care protocol in individuals with DMD.

Methods: This is a randomized, blinded controlled trial involving patients with DMD, aged 7 years. Patients will be randomly allocated into the conventional respiratory care (CRC) and optimized respiratory care home-based (ORC) groups. Primary outcomes will be peak cough flow and number of exacerbations. Secondary outcomes will include chest wall volumes, maximal respiratory pressures, nasal inspiratory and expiratory pressure and forced vital capacity (FVC), forced expiratory volume in the 1st second (FEV1) and, FEV1 /FVC. The CRC group will receive education on respiratory care during quarterly hospital visits will consist of guidelines on positioning in bed and during fluid and food ingestion. The caregiver will be trained on aspirating the oral cavity secretions and assisting patients in coughing through air stacking by manual ventilation with a bag and an oronasal mask when needed. The ORC group will receive education on respiratory care during quarterly hospital visits and weekly home visits by a physiotherapist. During the visit, the physiotherapist will provide settings to use and improve non-invasive ventilation, aspiration of upper airways and assisted coughing through air stacking. Both groups will receive weekly telephone calls to monitor patients and provide assistance to minimize complications and exacerbations. All caregivers will be trained to monitor vital signs and peripheral oxygen saturation. A 6-month intervention is planned, the outcomes will be assessed every 3 months, and 3- and 6-month follow-up after the final evaluation.

Results: The primary and secondary results will be described as average or median for continuous variables and absolute and relative frequencies for qualitative variables. Treatment effects or differences between the outcomes (baseline, 3 months, and 6 months) of the study groups will be analyzed using an analysis of variance. The level of significance will be set as $p \leq 0.05$.

Conclusion: individuals with DMD have respiratory complications that gradually worsen and may culminate in death. These patients should receive regular daily respiratory care and assistance from caregivers and family members, as well as professional follow-up to reduce exacerbations. The challenges associated with public health care for patients, as well as the lack of knowledge among health professionals and the community, favor the worsening of DMD and, consequently, the increase in hospitalizations and public spending.

Implications: We hope that the study can demonstrate the importance of home physiotherapy with specialized assistance, which will provide comfort and safety to patients and their families. We believe that a well-implemented therapeutic program will reduce morbidity and mortality rates in patients with DMD.

Keywords: Muscular Dystrophy Duchenne, Neuromuscular Diseases, Physical Therapy

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