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## FACTORS RELATED TO THE RISK OF ABNORMAL GENERAL MOVEMENTS IN PRETERM INFANTS IN A NEONATAL INTENSIVE CARE UNIT: DEVELOPMENT OF A MULTI-CRITERIA INDEX

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**Background:** The General Movements Assessment (GMA) is one of the most important tools for early diagnosis of neurodevelopmental disorders. It is a reliable, quick, and non-invasive assessment of spontaneous movements in newborns, ideal for use in the Neonatal Intensive Care Unit (NICU). Previous studies have identified a strong influence of postnatal clinical factors on the classification of general movements using the GMA in the NICU. However, this literature is still scarce in developing countries, limiting the use of the tool and, consequently, the early diagnosis and the monitoring of developmental changes.

**Objectives:** To develop a multicriteria index with the main clinical factors related to the occurrence of abnormal classification of general movements during the NICU stay; To verify the contribution of the index to explain the percentage of abnormal classifications of general movements and to identify babies at risk for developmental changes.

**Methods:** This is an exploratory cross-sectional study, with data from a prospective longitudinal study. Preterm newborns (PTNB) with less than 37 weeks of gestational age were included, according to admission to the NICU. Their spontaneous movements were classified as normal or abnormal through the GMA by 2 trained and certified evaluators. The babies' clinical variables were recorded on a data sheet. Data analysis was performed using the Multicriteria Decision Support, a method that allows the development of an index to identify risk factors related to the abnormal classification of the general movements of newborns.

**Results:** Fifty-two PTNB were evaluated, of which 30 (57.7%) were male, with a mean gestational age of 31.63 ( $\pm 2.38$ ) and mean birth weight of 1560.13 ( $\pm 412.86$ ). The mean total hospitalization time of the babies was 32.84 days, with the mean use of mechanical ventilation for 2.05 days; 45 (86.5%) used non-invasive ventilatory support and/or oxygen therapy. Grade I-II peri-intraventricular hemorrhage was identified in 24 (44.8%) babies and grade III in just two (3.8%); 4 (7.7%) PTNB had patent ductus arteriosus and 7 (13.5%) had postnatal infection. As for socioeconomic level, 44 (84.6%) families had an average income of less than 2 minimum wages. The multicriteria index was calculated from the equation: Multicriteria Index child  $i$  = Evaluation criterion 1 child  $i$  weight criterion 1 + .... + Evaluation criterion  $n$  child  $i$  weight criterion  $n$ . A significant positive linear association was found between the multicriteria index and the abnormal trajectories of general movements ( $R^2=0.27$ ;  $\beta=0.51$ ;  $p<0.0001$ ).

**Conclusion:** The developed multicriteria index was able to identify PTNB with a higher risk of developmental changes, given its positive relationship with the percentage of abnormal general movements.

**Implications:** The results of the present study reinforce the possibility of using GMA for the early detection of neurodevelopmental disorders in PTNB even during their stay in the NICU, helping with postnatal follow-up and early intervention, if necessary.

**Keywords:** General Movements, Preterm infants, Early diagnosis

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

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## FUNCTIONALITY AND RESPIRATORY MUSCLE STRENGTH POST-COVID 19 IN A CARDIOPULMONARY REHABILITATION SERVICE OF THE UNITED HEALTH SYSTEM (SUS)

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**Background:** Infection with SARS-CoV-2 (coronavirus) led to the involvement and complications of different organs, which may lead to signs and symptoms that can last for months after infection, functionally compromising these individuals. Faced with this, the physiotherapist has a fundamental role.

**Objective:** Describe the Functional Status and Respiratory Muscle Strength of post-covid patients, referred to start an outpatient cardiopulmonary rehabilitation (CPR) program of the Unified Health System (SUS), with complaints of dyspnea and fatigue.

**Methods:** Individuals with medical referral for rehabilitation due to cardiorespiratory and/or musculoskeletal complications due to COVID-19 infection were included, regardless of gender and age, and regardless of the type of clinical treatment performed during the infection phase of the disease. As estimates, the pre-intervention was linked to a research and extension project in cardiopulmonary rehabilitation aimed at patients with post-covid complications. The assessment was structured and performed with the application of the following tests and tests: Post-COVID-19 Functional Status Scale (PCFS), Modified Medical Research Council, Degree of Dyspnea (MRC), Test 1-minute Sit and Stand-Up Test (TST1), 2-minute Stationary Walking Test (SWT2), 6-minute Walk Test (6MWT) and Manovacuometry (MIP - Maximum Positive Inspiratory Pressure / MEP - Maximum Positive Expiratory Pressure).

**Results:** At this time, six (6) were evaluated, 4 males and 2 females, with a mean age of 52 years ( $\pm 18$ ). As results obtained are: PCFS: Grade 0 (1 person), grade 1 (2 people), grade 2 (2 people), grade 3 (1 person); MRC 1 ( $\pm 1$ ); TST1 17 repetitions  $\pm 6$ , SWT2 53 lifts ( $\pm 25$ ), 6MWT 413 m ( $\pm 112$ ) with mean predicted value of 595; PiMax -82cmH<sub>2</sub>O ( $\pm 31$ ) with a mean predicted value of -100cmH<sub>2</sub>O; PeMax +83cmH<sub>2</sub>O ( $\pm 31$ ) with a predicted average of +104cmH<sub>2</sub>O.

**Conclusion:** For these patients, it was possible to observe PiMax and PeMax values below the predicted values, showing impairment of the respiratory muscles. In addition, a single individual did not present functional dysfunction, and the functional performance tests justified the lower-than-expected results.