Online Perspectives Journal: Biological & Health
Proceedings of the 7th International Congress on Scientific Knowledge
6th Research & Development PROVIC/PIBIC
v. 11, nº 38, Supplement, 2021

Elaboration of neonatal and pediatric mechanical lungs

Anna Esther de Souza Lopes Palagar[1], *Katrine de Souza Guimarães*[1], *Gabriela Motta Vasconcelos*[2], *Karla Duarte Barreto Xavier*[2], *Luciano Matos Chicayban*[3]

(1) Scientific Initiation Student at PROVIC/ISECENSA – Physiotherapy Course; (2) Student of the Physiotherapy Course at ISECENSA; (3) Advisor Researcher - Laboratory of Physiotherapy in Pneumofunctional and Intensive Research (LAPEFIP /ISECENSA – Physiotherapy Course - CENSA Higher Education Institutes – ISECENSA, Rua Salvador Correa, 139, Centro, Campos dos Goytacazes, RJ, Brazil.

Pediatric patients or newborns admitted to Neonatal Intensive Care Units (NICU) receive life support care due to various conditions and pathologies. The physiotherapist controls and applies medicinal gases, institutes and monitors invasive and non-invasive mechanical ventilation, as well as performs weaning, among others. Learning ventilatory management must be appropriate for the age and, therefore, consider different lungs for the proper simulations of compliance and resistance. Although the insertion of physical therapists is relatively recent, there are several postgraduate courses and training in this area. The creation of a mechanical lung that covers, separately, neonatal and pediatric patients will be a fundamental tool for the learning and training of future professionals who will work in the area. To develop two neonatal and pediatric mechanical lungs, as well as to simulate different elastic and resistive behaviors inherent in clinical practice. Experimental study, bench, divided into two stages: creation of mechanical lungs and evaluation of mechanical characteristics. The lungs will be made on a two-story metallic base: on the upper floor, the pediatric lung and the lower floor, the neonatal. In the second stage, the mechanical lung will be connected to a mechanical ventilator, using its own ventilatory parameters used in both types of patients. For the neonatal, respiratory rate of 35 rpm, inspiratory time of 0.45 and endotracheal tube of 3.0 mm. The pediatric lung will be ventilated with a volume between 100-120mL, 20-25 compliance and a 4.5mm orotracheal tube. The construction of the neonatal and pediatric mechanical lung will strongly add the teaching of the Neonatal and Pediatric Intensive Physical Therapy specialty in the Undergraduate and Graduate settings, adding value to the teaching and training of professionals.

Keywords: Respiratory therapy. Physical therapy modalities. Intensive care. Neonatal; Respiration. Artificial.

Supported by: ISECENSA