DISSERTATION DEFENSE: **DÉBORA SIDRÔNIO CAETANO**

DATE: MAY 16, 2022
TIME: 9:30 am
PLACE: Google Meeting
TITLE: **REGIONAL DISTRIBUTION OF PULMONARY VENTILATION IN CRITICAL PATIENTS WITH COVID-19**

Key words: COVID-19; ARDS; pulmonary ventilation; electrical impedance.

WORDS: 299

Although critically ill patients with COVID-19 meet the broader definition of ARDS, there is still conflicting evidence regarding the distribution of areas of pulmonary impairment and how these may influence oxygenation and ventilatory mechanics. In this scenario, the use of technologies for bedside diagnostic imaging such as Electrical Impedance Tomography (EIT) can help in clinical evaluation and decision making. Thus, the objective of this dissertation was to map the pulmonary hypoventilation regions of mechanically ventilated patients with ARDS secondary to COVID-19; and verify their association with respiratory system compliance and gas exchange. This is a secondary analysis of a clinical trial. A total of 53 participants hospitalized in an Intensive Care Unit specialized in the care of patients with COVID-19 on mechanical ventilation were selected. Pulmonary ventilation distribution was evaluated using Electrical Impedance Tomography (EIT), arterial blood gas analysis, and ventilatory mechanics. For analysis, the lung images were divided into quadrants of equal size, and the images were categorized according to the percentage of impedance variation (ΔZ) found in each quadrant. Four categories of distribution of areas of pulmonary hypoventilation were identified, in order of prevalence: preserved dorsal ventilation; unilaterally reduced dorsal ventilation; reduced dorsal ventilation bilaterally; preserved unilateral ventilation. Among the categories, patients with bilaterally reduced dorsal ventilation have a higher level of compromised oxygenation indicated by the PaO_2/FiO_2 ratio, however, there is no difference in respiratory system compliance values between the analyzed categories.

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