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Inspiratory muscle training – effectiveness in the intradialytic period

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Background
The function of the inspiratory muscles in hemodialyzed patients is compromised, with a decrease in diaphragm thickness, muscle strength, and altered lung volumes (1,2). Several studies have demonstrated the effectiveness of inspiratory muscle training: increased functional capacity and strength of inspiratory muscles, decreased sensation of dyspnea, improved quality of life, and lung volumes (3,4).

Objectives
To evaluate the impact of inspiratory muscle training in hemodialysis patients on muscle strength (Maximum Inspiratory Pressure) and electrical activity (Electromyography) of the inspiratory muscles, on functional capacity (6-minute Walk Test), and lung volumes (Spirometry).

Methods
We intend to carry out a randomized clinical trial (approved by the Ethics Committee of the Polytechnic Institute of Bragança) on a sample of 50 hemodialysis patients. In the intervention group, patients will undergo Inspiratory Muscle Training (IMT) with resistance of 50% of Maximum Inspiratory Pressure using an electronic device. The IMT involves 3 sets of 30 repetitions, during the intradialysis period, for 36 sessions. Pre and post-intervention assessments of the variables under study will be carried out.

Results
In hemodialysis patients, muscle weakening of the inspiratory muscles is still a little-studied reality: studies with small, heterogeneous samples and non-uniform procedures. It is known that IMT has proven scientific evidence in various chronic diseases. It's a simple and safe intervention, with the advantage that it can be performed during hemodialysis sessions in patients with compromised mobility. We intend to clarify the impact of Chronic Renal Failure on these muscle groups and develop an IMT protocol that can be replicated.

Conclusion/Application to practice
This is an innovative project in the Iberian Peninsula as there are no studies in this area with the variables proposed here. If the cost-effectiveness of this intervention is confirmed, it will be the first step towards integrating this care into all hemodialysis services.

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Disclosure of Interest
No