

EUROPEAN RESPIRATORY *journal*

OFFICIAL SCIENTIFIC JOURNAL OF THE ERS

Abstracts / 24th International Congress
Munich, Germany 6 –10 September 2014

427. Assessment and techniques of physiotherapy: from healthy subjects to critical patients

4297

A new device for inspiratory muscle training in patients with tracheostomy tube in ICU: A randomized trial

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Background: Evaluation and training of the respiratory muscles are essential to reducing time of weaning invasive mechanical ventilation (VMI) in intensive care units (ICU). Powerbreathe® is indicated for inspiratory muscle training (IMT) with a progressive resistance and adjustable load in respiratory disease patients. **Objective:** Compare the inspiratory muscle strength between two groups of tracheostomy patients: IMT with Powerbreathe® and breathing through a humidified t-piece (T-tube). **Methods:** 25 tracheostomy patients were selected under VMI and randomized into two groups: T-tube (control) and IMT with Powerbreathe®. Patients of both groups received respiratory physical therapy and the MIP measurements with a digital manometer (MVD300, Globalmed®), with a one-way valve connected to tracheostomy, with occlusion for 20 seconds. In control group patients underwent T-tube until complete 48 hours of continuous nebulization. In the IMT group was used Powerbreathe® KH2 model (Powerbreathe®, IMT Technologies Ltd., Birmingham, England) for 30 cycles (three sets of 10 cycles with 1 minute interval between them), adjusted load 30% of the initial MIP, increasing 10% daily. For statistical analysis, were applied Wilcoxon test for comparison of related and Mann-Whitney test for independent samples variables. P values <0.05 were considered statistically significant. **Results:** Of 19 patients, 8 in the IMT group with 7 men and 11 in the control, with 8 men. Were increased final MIP compared to initial in IMT group (p=0.017), with no significant difference for the control group (p=0.304). **Conclusion:** The IMT with Powerbreathe® in tracheostomy patients promotes increased muscle strength.



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