

PERSONALIZED MEDICINE, ASTHMA AND ALLERGY

Project title

“Electronic referral based hub & spoke network model for the management of severe asthma”

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Laboratory name: Personalized Medicine, Asthma and Allergy

Abstract

Asthma is an inflammatory disorder with a significant impact on individuals in terms of quality of life. The treatment of asthma consists of both pharmacological and non pharmacological interventions. The latter may consist in many aspects including education and various forms of pulmonary rehabilitation that comprises breathing exercises (BE), inspiratory muscle training (IMT) and physical training (PT). High intensity interval training (HIIT) is a form of interval training alternating short periods of intense anaerobic exercise (80-90% of Heart rate max) with less intense recovery periods. There is no data about HIIT in asthmatic patients.

The aim of this study is to analyze the impact of physiotherapeutic approach, including HIIT, in patients with moderate uncontrolled asthma.

Main technical approaches

- Lung function tests (spirometry, plethysmography, bronchodilation test, DLCO);
- Exhaled nitric oxide (FENO), and its alveolar (CalvNO) and bronchial (JawNO) components
- 6-Minutes Walking Test (6MWT)
- VO₂max
- Exhaled Breath Condensate (EBC) collection and determination of the concentration of biomarkers in EBC (nitrates, nitrites, Cys-LTs, 8-isoprostanone);
- Patients Reported Outcomes (PROs): Asthma Control Test (ACT), Asthma Quality of Life Questionnaire (AQLQ), Rhinitis and Asthma Patient's Perspective (RAPP), Attachment Style Questionnaire (ASQ), Moriski Medication Adherence Scale (MMAS), Illness Perception Questionnaire (IPQ)
- pulmonary rehabilitation;
- High intensity interval training (HIIT)

Scientific references

- Visca D, Zampogna E, Heffler E, Puggioni F, Pignatti P, Racca F, Sotgiu G, Negri S, Canonica GW, Spanevello A. Effectiveness of pulmonary rehabilitation programs on persistent asthma. Eur Respir J 2018 52: PA1093.



- Heffler E, Crimi C, Brussino L, Nicola S, Sichili S, Dughera L, Rolla G, Crimi N. Exhaled breath condensate pH and cysteinyl leukotriens in patients with chronic cough secondary to acid gastroesophageal reflux. *J Breath Res.* 2016 Dec 22;11(1):016002.
- Malinovschi A, Pizzimenti S, Sciascia S, Heffler E, Badiu I, Rolla G. Exhaled breath condensate nitrates, but not nitrites or FENO, relate to asthma control. *Respir Med.* 2011 Jul;105(7):1007-13.