MPP21 P4COPD: Prediction, Prevention, Personalized and Precision management of COPD in young adults

Description

Recent research has shown that Chronic Obstructive Pulmonary Disease (COPD) is the end result of dynamic and cumulative gene-environment interactions starting early in life. This opens new opportunities for the prediction, prevention, personalized and precise management (P4) of COPD in young adults.

Objectives: (1) to investigate the genomic and environmental/lifestyle determinants of COPD in young adults (20-50 years); (2) to contrast them with those determined in children, adolescent and older individuals; and (3) to explore the feasibility and cost of implementing in clinical practice a P4 strategy for COPD in young adults. Methods: We will extend and update existing cohorts (EarlyCOPD, INMA, Levante, UGR) of young subjects (20-50 years) in whom we will: (1) record demographic, epidemiological, clinical and physiologic information; (2) measure genetic, epigenetic and proteomic markers; (3) use integrative analytical methods to identify endotypes, biomarkers and potential therapeutic targets associated with the presence of COPD. These results in young individuals: (4) will be contrasted with general population (Pillar 1 IMPaCT, CADSET, HELIX, Episcan II) and old COPD cohorts (Bode, Biomepoc, Chain, ECLIPSE) cohorts. Besides, we will (5) explore how to implement this P4 medicine approach in clinical practice through the development of an individual COPD risk calculator, design and test educational activities, and (6) estimate its potential health cost implications.

Viability: This project is viable because: (1) cohorts already exist and can be expanded and updated; (2) investigators have ample expertise in translational research in COPD; (3) required knowledge and methodology is already in place. Clinical relevance: Due to the high prevalence, and social and economic impact of COPD, identifying young individuals at risk, in whom to establish preventive, personalized and precise measures is a highly relevant opportunity to promote healthy aging. Chronic Obstructive Pulmonary Disease, COPD, genomics, epigenetics, accelerated aging, environment, lung function, trajectories, gene - environment

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