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Editorial

OBESITY DILEMMA IN CHRONIC OBSTRUCTIVE PULMONARY DISEASE

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Modern approaches for the management of chronic obstructive pulmonary disease (COPD) are urgently expected since COPD becomes the 3rd leading cause of death worldwide [1]. In this respect, precision medicine could be the right option in COPD. Announced in 2015 by president Obama in the USA, precision medicine is defined by the treatment tailored on genetic, psychosocial, phenotypic and biomarker characteristics. Precision medicine is also an initiative of the National Institute of Health (NIH) in the USA [2].

Obesity and COPD should be managed by precision medicine, starting with the nutritional status evaluation. Sarcopenia should be monitored, being historically associated with COPD and particularly with poor lung function outcomes. With a prevalence of 42 % of obesity and 35% of overweight in COPD subjects [3], obesity is becoming more and more important as a major comorbidity in COPD. The presence of obesity in COPD is amplifying dyspnea, poor quality of life, more marked reduction in functional capacity and increased sedentarism. In addition, chronic inflammation as the key metabolic change in obesity, has deleterious effects on COPD progression. Moreover, comorbidities associated with COPD such as type 2 diabetes, obstructive sleep apnea and cardiovascular disease are all aggravated by obesity association.

However, as in other chronic diseases such as heart failure and chronic kidney disease, for COPD also has been described the interesting "obesity paradox", with overweight and mild obesity being associated with improved survival rates [4,5] and a slower decline in lung function [6]. The large prospective study using data from the Copenhagen City Heart Study [4] was the first to report these findings in 1999. More recently, a large meta-analysis of 17 studies performed in 2016 by Guo et al. [6] revealed the increased risk of death in underweight patients with a RR of 1.4 (95% CI, 1.2-1.63, p=0.001), whereas risk is reduced in overweight (RR 0.8 95% CI, 0.67-0.96; p=0.0001) and obese subjects (RR 0.77, 95% CI, 0.62-0.95 ; p=0.0162).

In the same meta-analysis, the highest mortality risk was seen at BMI<21,75 kg/m^2 while the lowest risk at BMI ~30 kg/m^2. With increasing weight, this protective effect of

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overweight/mild obesity cannot be seen anymore at BMI > 32kg/m^2 [6], suggesting that increasing body weight benefit is associated only with overweight and mild obesity. This led to the "obesity dilemma" in COPD: to treat or not to treat obesity ? [3].

The best therapeutical approach for obesity and COPD is still unknown due to this "obesity paradox". Treating obesity, especially in older people with sarcopenia and COPD, could be a real challenge for the clinician. Cardiovascular outcomes could be improved but may worsen respiratory parameters and survival by lowering body weight [7]. International experts recognize the lack of guidelines in this area.

Practically, muscle mass maintenance will be the priority in those 2 comorbidities treatment. Obesity management should be probably included in pulmonary rehabilitation, as an effective multidisciplinary team approach to COPD. Pulmonary rehabilitation is targeting dyspnea, health related quality of life, exercise capacity enhancement and decreased hospitalization. Mindfulness based cognitive therapy [8] included in pulmonary rehabilitation could have a statistically significant effect on psychological distress.

The new 2019 guidelines for obesity management in primary care [9] recommends mindful eating to be considered. Some evidence is supporting the use of the "Mediteranean Diet" that could be protective in COPD [10]. Further guidelines are expected for the management of obesity in COPD subjects.

Prospective medical nutrition therapy in COPD should prioritize: adapted caloric intake for long term maintenance of BMI between 22-30 kg/m^2, muscle mass maintenance by providing adequate protein intake at ~ 1.2 kg/m^2 day and the right balance between macronutrient with approximately 15-20% of calories from proteins; 30-35% from lipids; and 40-55% from carbohydrates [11]. The Mediterranean diet, physical activity in accordance with individual training performances and smoking cessation will represent the basis for the long-term healthy lifestyle recommended for these patients.

In conclusion, in obese subjects with COPD, healthy lifestyle recommendations as part of the pulmonary rehabilitation multidisciplinary intervention, will lead to a healthy weight and better pulmonary outcomes.

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