

## GENDER DIFFERENCES IN THE MANAGEMENT OF CHRONIC OBSTRUCTIVE PULMONARY DISEASE: EFFECT OF A CLINICAL AUDIT IN A SICILIAN GENERAL PRACTICE SETTING

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**Introduction:** Chronic obstructive pulmonary disease (COPD) is considered a predominantly male disease, but recent studies reported increasing prevalence in women. Gender differences in quality of care (QOC) of COPD have not yet fully explored in Italy. The aim of this study was to evaluate gender differences about management of COPD patients in relation to an educational intervention that has been carried out in Sicilian general practice setting.

**Material and methods:** In this prospective cohort study, COPD patients, along with their clinical history, were identified from electronic medical records of 33 Sicilian general practitioners (GPs) between 2013-2015 using International Classification of Diseases, 9th Edition, with clinical modification (ICD-9CM) codes: 496\* (chronic airway obstruction, not elsewhere classified) and 491.2\* (obstructive chronic bronchitis). Twelve process indicators concerning COPD diagnosis, preventative measures and pharmacological therapy were developed by GPs, pneumologists and clinical pharmacologists. Those indicators were measured for each patient as binary variables, i.e., as having or not having an optimal QOC. Educational interventions consisted of clinical audits on COPD QOC indicators at baseline, and after 12 and 24 months, plus continuous remote education, i.e. dissemination of important COPD-related information through a dedicated app. A descriptive analysis was conducted where patient characteristics and QOC indicators were stratified by gender. The odds ratios (OR) of mean values (with 95% confidence intervals (CI)) for QOC indicators for females, using males as the comparator group, were calculated at baseline, and after 12 and 24 months of the beginning of the educational intervention.

**Results:** Of 46,326 people registered with GPs, 1,463 COPD patients (3.1%) were identified; of these, approximately a third (N=536) were women. The median age (interquartile range) was similar between males and females (74(66-81) vs. 74(64-82) years, respectively). At baseline, hypertension was the most common comorbidity in both sexes (71.8% males; 77.4% females; p-value <0.05). Osteoporosis was more frequent in females (37.5% vs. 6.3%; p-value: <0.05). Baseline QOC indicators generally suggested better treatment for men than for women. The most extreme cases at baseline were adherence to long-acting  $\beta$ -agonist (LABA) and/or long-acting muscarinic antagonist (LAMA) therapy ( $\pm$ inhaled corticosteroids (ICS)) (OR 0.47; CI 95% 0.32-0.68) and a recorded medical history of smoking status (OR 0.51; CI 95% 0.37-0.71), with ORs less than 1 indicating a lower frequency of a particular QOC indicator in women, as compared to men. Baseline QOCs related to COPD therapy showed no gender disparity or favoured men, such as non-use of ICS as monotherapy in the year prior to study entry (OR: 0.58(95% CI: 0.38-0.87)). The gender disparity in QOC at baseline remained largely unchanged at 12 and 24 months, with some exceptions. The non-occasional use of COPD drugs (an indicator of good QOC), was higher among men at baseline, (OR: 0.58(95% CI: 0.38-0.87)), while at 24 months there was no statistically significant difference between men and women (OR: 0.82(95% CI: 0.46-1.87)). A similar trend was seen for BMI registration, which was significantly better among males at baseline (OR: 0.74(95% CI: 0.55-0.99)) while at 24 months there was no significant difference between males and females (OR: 0.83(95% CI: 0.59-1.16)). Adherence to LABA and/or LAMA therapy ( $\pm$ ICS) remained statistically significantly better among males than females at baseline, 12 and 24 months, although a 10% reduction in disparity was seen at 24 months compared to baseline (OR: 0.47(95% CI: 0.32-0.68)) vs. 0.59(95% CI: 0.40-0.87).

**Discussion and conclusions:** QOC gender disparity among COPD patients was observed in a Sicilian general practice setting, with better disease management in men. This difference remained also after the implementation of an intensive educational program, highlighting the need to tailor gender-specific interventions.