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Original Article

Comorbidities and Health Status in Individuals With and Without COPD in Five Latin American Cities: The PLATINO Study☆

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ABSTRACT

Introduction: Comorbidities are common in patients with chronic obstructive pulmonary disease (COPD), and have a significant impact on health status and prognosis. The PLATINO study provides data on self-reported comorbidities and perceived health status in COPD subjects.
Methods: PLATINO is a population-based study on COPD prevalence in five Latin American cities. COPD diagnosis was defined by GOLD criteria ($FEV_1/FVC<.70$ post-bronchodilator). Information was collected on the following comorbidities: heart disease, hypertension, diabetes, cerebrovascular disease, peptic ulcer and asthma. Health status was evaluated using the SF-12 questionnaire, derived from the question: "In general, would you say your health is excellent, very good, good, fair or poor?" A simple comorbidity score was calculated by adding the total number of comorbid conditions.
Results: Of a total population of 5314 individuals, 759 had COPD. Reported comorbidities by decreasing frequency were: any cardiovascular disease, hypertension, peptic ulcer, heart disease, diabetes, cerebrovascular disease, asthma and lung cancer. COPD patients had a higher comorbidity score and prevalence of lung cancer ($P<.0001$) and asthma ($P<.0001$), as well as a higher tendency to have hypertension ($P=.0652$) and cerebrovascular disease ($P=.0750$). Factors associated with comorbidities were age, body mass index (BMI) and female gender. The number of comorbidities increased as the health status deteriorated.
Conclusions: In the PLATINO population-based study, COPD individuals had an increased number of comorbidities. Age, female gender and higher BMI were the factors associated with comorbidity in these patients. Comorbid conditions were associated with impaired health status, independently of the COPD status.

Comorbilidades y estado de salud en individuos con y sin EPOC en 5 ciudades de América Latina: Estudio PLATINO

Palabras clave:
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RESUMEN

Introducción: La enfermedad pulmonar obstructiva crónica (EPOC) se asocia a comorbilidades que influyen en el estado de salud y en el pronóstico de los pacientes. El estudio PLATINO aporta datos sobre comorbilidades autorreportadas y percepción del estado general de salud (EGS) en la EPOC.
Métodos: PLATINO es un estudio poblacional, sobre prevalencia de EPOC en 5 ciudades de Latinoamérica. El diagnóstico de EPOC se realizó según el criterio de GOLD ($FEV_1/FVC<0{,}70$ post-broncodilatador).

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Se recogió información sobre las siguientes comorbilidades: cardíaca, hipertensión, diabetes, accidente cerebrovascular (ACV), úlcera y asma. El EGS se evaluó mediante el cuestionario SF-12, con la pregunta: «En general ¿diría usted que su salud es: excelente, muy buena, buena, regular o pobre?». Sumando las comorbilidades, se elaboró un índice de comorbilidad.

Resultados: Sobre una población total de 5.314 individuos se realizó diagnóstico de EPOC en 759. Las comorbilidades reportadas en orden decreciente fueron: cualquier tipo de enfermedad cardiovascular, hipertensión, úlcera péptica, enfermedad cardíaca, diabetes, ACV, asma y cáncer de pulmón. Los sujetos con EPOC tuvieron mayor índice de comorbilidad, prevalencia de cáncer de pulmón ($p < 0{,}0001$) y asma ($p < 0{,}0001$), así como mayor tendencia a hipertensión ($p = 0{,}0652$) y ACV ($p = 0{,}0750$). Los factores asociados a comorbilidad en EPOC fueron la edad, el índice de masa corporal (IMC) y el género femenino. Con el deterioro del EGS aumenta el número de comorbilidades.

Conclusiones: En población no seleccionada los individuos con EPOC presentan más comorbilidades. La edad, el sexo femenino y mayor IMC son los principales factores asociados a comorbilidad en estos pacientes. Independientemente de la condición de EPOC, un mayor número de comorbilidades se asocia a peor EGS.

Introduction

Chronic obstructive pulmonary disease (COPD) is a major public health problem[1] that frequently presents with other chronic diseases or comorbidities and can have a significant impact on health status and prognosis. Although the prevalence of comorbidities varies depending on the series under study,[2] the most common are cardiovascular diseases, malignant neoplasms (particularly lung cancer), diabetes and psychiatric disorders.[3]

Barr et al.[4] evaluated the prevalence and distribution of comorbidities in COPD patients in a telephone survey. Over half of the patients interviewed had hypertension or hypercholesterolemia and one-third or more had depression, cataracts or osteoporosis.

In a population-based sample of 14 828 subjects (≥45 years of age), including 995 subjects with a medical diagnosis of COPD, Schnell et al.[5] found that, in these patients, comorbidities were the rule rather than the exception. Over 90% of COPD patients had at least one condition that could impact negatively on treatment, the most common being arthritis, depression, osteoporosis, cancer, coronary disease, heart failure and cerebrovascular disease.

Comorbidities have repercussions on the COPD patient's general state of health, the use of healthcare resources, hospitalizations and mortality.[6–11] Indeed, while the most common cause of death in patients with advanced disease is respiratory, in patients with mild to moderate COPD, mortality is associated with cardiovascular comorbidities and lung cancer.[9,10]

Recently, Divo et al.[12] evaluated the risk of mortality due to comorbidities in COPD. In a patient cohort followed up for an average of 51 months, 12 comorbidities associated with greater mortality were identified and used to draw up a comorbidity index: COTE (CO-morbidity TEst). Thus, comorbidities such as hypertension and hypercholesterolemia, which are common in COPD patients, would not be associated with increased mortality, while others such as cancer (particularly of the lung, esophagus, pancreas and breast), anxiety, liver cirrhosis, atrial fibrillation, diabetes, pulmonary fibrosis, heart failure, gastroduodenal ulcer and coronary disease would be.

Very little information is available on the incidence of comorbidities in COPD patients from multicenter epidemiological studies that also include diagnosis by spirometry and evaluation of the repercussions of such comorbidities on general health status.

The objectives of this study were: a) to determine the incidence of self-reported comorbidities in the overall population and in subjects with and without COPD in the PLATINO study; b) to analyze the possible factors associated with the incidence of self-reported comorbidities in subjects with and without COPD; and c) to examine the perceived general health status of the overall population and COPD subjects in relation to their various comorbidities.

Materials and Methods

PLATINO is a multicenter, cross-sectional, population-based study designed to measure the prevalence of COPD in 5 Latin American cities: São Paulo (Brazil), Mexico City (Mexico), Montevideo (Uruguay), Santiago de Chile (Chile) and Caracas (Venezuela). Details of the sampling methods and the size of the population-based sample have been published previously.[13]

To summarize, a representative sample of subjects aged 40 years and over were selected using a multi-stage cluster sampling strategy. The working protocol was approved by the ethics committee of each center.

Subjects interviewed completed a questionnaire and underwent spirometry testing using portable equipment (Easy-One™; NDD Medical Technologies, Chelmsford MA and Zurich, Switzerland). Data were obtained on symptoms, smoking habit, years of education, employment, previous spirometry, respiratory medication and previous diagnosis of COPD, asthma or tuberculosis.

The general health status data were evaluated using the SF-12 questionnaire and the patient's perceived health status was derived from the question "In general, would you say that your health is excellent, very good, good, fair or poor?"

COPD diagnosis was defined by the GOLD criterion (FEV_1/FVC ratio <0.70 post-bronchodilator),[1] resulting in 2 subject groups, those with and those without COPD. Both groups were divided into subgroups of smokers or ex-smokers and non-smokers.

Self-reported data on comorbidities were gathered from the following questions:

- Has the doctor told you at any time in your life that you have or have had any of the following diseases? (Yes/No)
  a. Heart disease?
  b. High blood pressure (hypertension)?
  c. High blood sugar (diabetes)?
  d. Lung cancer?
  e. Brain embolism, ischemia or hemorrhage (cerebrovascular disease)?
  f. Tuberculosis?
  g. Gastritis or ulcer?
- Has the doctor ever told you that you have asthma, asthmatic bronchitis, bronchospasm or allergic bronchitis?

A simple comorbidity index (range 0 to 7) was drawn up, adding one point for each of the self-reported comorbidities (heart disease, hypertension, cerebral infarction, diabetes, lung cancer, ulcer, asthma). For example, a patient who replied "yes" to the question on previous diagnosis of diabetes, hypertension and asthma would have a comorbidity score of 3.