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Abstract

ZENTRALINSTITUT FÜR DIE KASSENÄRZTLICHE VERSORGUNG IN DEUTSCHLAND

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Nature of the paper (check boxes)

☐ report on implementation project / experience / policy perspectives

☒ scientific research a) describing work in progress ☐ b) new methods ☒ c) presenting results ☒

Title

Use patterns of long-acting bronchodilators in routine COPD care: a multilevel analysis of the patient-doctor relationship. Results from the OUTPUL Study.

Background

Effective COPD management includes regular treatment with long-acting bronchodilators (LB). Patients who experience repeated exacerbations are recommended to add inhaled corticosteroids (ICS) to their LB treatment, but no clinical guidelines recommend the use of ICS alone (1). Observational studies report poor adherence to LB therapy in clinical practice (2). Moreover, a substantial geographic variation was observed among health districts in the Lazio region. The adjusted proportions of adherent patients ranged from 20% to 44%. Some of this variability might be due to differences among general practitioners (GPs) in their prescription behaviour. However, from the current scientific evidence, it is not possible to quantify how much of the "distance from guidelines" is attributable to the patient characteristics or to the GP's indications. The analysis of these additive and independent components of variation (i.e. variation among patients "nested" within the same GP versus variation among GPs) may be a useful tool to define areas for more targeted interventions aimed at improving adherence to guidelines.

Objectives

The aims of the study are to describe drug-utilization in COPD patients, to quantify how much of the "distance from guidelines" is attributable to the patient or to the GP characteristics, and to identify determinants of treatment discontinuation.

Methods

Using linked health information systems from the Lazio region (about 5 million residents), Italy, we identified a cohort of patients discharged from the hospital with a diagnosis of COPD between 2006-2008. Patients were followed-up for two years, starting from the day of discharge. Follow-up was segmented into six-month periods, in order to dynamically evaluate prescriptions of long-acting beta-agonists (LABA), tiotropium and ICS. Patients with prescriptions for LABA and/or tiotropium in each of the six-month periods were defined as adherent to LB therapy. The variation among GPs was analyzed applying Empirical Bayes methods. Multilevel analysis was used to assess the variability in adherence attributable to the patient characteristics and to the GP characteristics.

Results

Among the 10062 adult patients included (mean age: 74 years; males: 56%), 15% of patients did not receive any study drug, 6% started treatment late, 31% discontinued treatment for at least six months, and 12% received ICS monotherapy without any prescription of LB. About 36% were adherent to LB therapy. Most of the variation in adherence was observed within GPs. Several comorbidities were associated ($p <= 0.05$) with a higher risk of treatment discontinuation, e.g. diabetes (OR=1.36), psychiatric diseases (OR=1.62) or rheumatologic diseases (OR=2.06). However, after controlling for socio-demographics and clinical conditions, patient adherence significantly varied also between GPs (variance component=0.12; standard error=0.05; p=0.007) and was influenced by doctor characteristics: adherence was higher with GPs who graduated more recently (p=0.028) and with GPs working in teams, sharing facilities, electronic patient-records, and clinical staff (p=0.048).

Conclusion/Discussion/Policy Perspective

COPD pharmacotherapy is characterized by poor adherence. Several comorbidities may lead to higher discontinuation rates. However, a relevant variation was observed at GP level and explained by GP characteristics. Therefore, GPs may play an important role in improving patients' adherence. Continuous medical education is needed to raise awareness among physicians and patients on the health benefits of an appropriate pharmacological treatment. The application of multilevel models to real practice data, collected on very large population is the innovative aspect of our study. We believe that this methodology can effectively guide health policies, improve adherence to guidelines and therefore patients' health status.

Literature

1) Global Initiative for Chronic Obstructive Lung Disease (GOLD). Global Strategy for the Diagnosis, Management, and Prevention of COPD, 2014 update.
2) Di Martino M, Agabiti N, Bauleo L, et al. Use patterns of long-acting bronchodilators in routine COPD care: the OUTPUL study. COPD, 2014; 11(4): 414-423.