

Association between polypharmacy and secondary care utilisation in patients with chronic obstructive pulmonary disease following index hospital admission for exacerbation

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Introduction

Polypharmacy is common in elderly patients at hospital discharge and is associated with increased risk of readmission, reduced medication adherence and increased healthcare costs(1). In patients with chronic obstructive pulmonary disease (COPD) admitted for exacerbations, polypharmacy increases during admission and, at discharge, is independently associated with admission polypharmacy, lung function and co-existing heart failure(2). The aim of our study was to determine the relationship between polypharmacy and secondary care utilisation in COPD patients in the year following hospital admission for exacerbation.

Methods

Participants were unselected patients identified by first admission for COPD exacerbation September-December 2014 who survived ≥ 1 year post-discharge. Comorbidities and medication use at discharge (baseline) and acquired during follow up were obtained from electronic records. Concurrent use of ≥ 5 medicines was defined as polypharmacy and ≥ 10 medicines as excessive polypharmacy. Annualised prescribing costs were derived from medication use using BNF 68.

Results

At baseline, 120 COPD patients (age 73 ± 10 years, 53% male) took 9.6 ± 3.9 medicines. Increasing polypharmacy was associated with increasing number of comorbidities and increased annual admissions for respiratory disease, independent of age, sex and heart failure(table). Baseline polypharmacy was associated with increased secondary care utilisation over the subsequent year(table). During 1 year follow up, patients acquired 1.3 ± 1.8 new medicines. Increasing medication use was associated with number of inpatient admissions, independent of number of comorbidities, polypharmacy at baseline, age and sex.

Conclusions

Polypharmacy and excessive polypharmacy are common in COPD patients. Our longitudinal data indicates both that baseline polypharmacy is associated with subsequent increased secondary care utilisation and that greater secondary care use is associated with worsening polypharmacy. Hospital admission provides an important opportunity for medication optimisation to reduce the burden and cost of polypharmacy for COPD patients.

References

1. Logue *et al* (2016) *J Am Board Fam Med*.**29**:50-9
2. Díez-Manglano *et al* (2014) *Eur Resp J*.**44**:791-4

| | No polypharmacy | Polypharmacy | Excessive polypharmacy | P value |
|------------------------------------|-----------------|------------------|------------------------|---------|
| Number | 24 (20%) | 36 (30%) | 60 (50%) | |
| Age (years) | 70+/-8 | 74+/-11 | 74+/-11 | 0.313 |
| Men (n(%)) | 18 (29%) | 14 (23%) | 30 (48%) | 0.022 |
| Women (n(%)) | 6 (10%) | 22 (38%) | 30 (51%) | |
| Comorbidities (number) | 1.5+/-1.4 | 2.0+/-1.4 | 2.9+/-1.5 | <0.001 |
| Length of index admission (days) | 1.8+/-1.7 | 3.9+/-4.0 | 5.2+/-5.8 | 0.021 |
| Hospital admissions (respiratory) | 1.2+/-1.5 | 2.1+/-2.4 | 2.4+/-1.9 | <0.001 |
| Hospital admission (comorbidities) | 0.6+/-1.0 | 0.4+/-0.8 | 1.1+/-1.7 | 0.029 |
| Hospital admissions (total) | 1.8+/-2.3 | 2.5+/-2.8 | 3.5+/-2.3 | <0.001 |
| Emergency visits | 1.0+/-2.4 | 1.2+/-1.8 | 2.2+/-3.6 | 0.016 |
| Outpatient visits | 1.9+/-3.1 | 3.4+/-3.1 | 3.1+/-3.4 | 0.023 |
| Annualised prescribing costs | £456 (0-911) | £1148 (889-1439) | £1637 (1396-1960) | <0.001 |