324. Comorbidities and management in primary care

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Association of comorbidity and mortality in COPD

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Introduction: The aim of this study was to investigate the association of comorbidity and underweight with all cause-mortality in COPD patients.
Methods: A total of 1548 patients with a diagnosis of COPD were randomly selected from 56 primary care and 14 secondary care centres in Sweden. The response rate was 75%. Information was collected using questionnaires in 2005 and record review for the period of 2000-2003. The Swedish Board of Health and Welfare provided mortality data. Lung function and history of comorbidities were obtained from the patients' records. This analysis included patients with available spirometry data. Cox's proportional hazards model was used to estimate the hazard ratio.
Results: A total of 552 patients (aged 34-75) were included in the study, 43% men (mean age 65) and 57% women (mean age 62). Of all, 27% were current smokers and mean FEV1 (percent of predicted) was 58. Over five years, in total 120 patients (22%) died, 13% in primary care and 33% in secondary care. Mortality was significantly higher in patients with ischemic heart disease/cardiac failure, hazard ratio 1.91 (95%CI 1.30-2.80), with hypertension, hazard ratio 1.83 (95%CI 1.22-2.75) and with underweight (BMI<20), hazard ratio 1.74 (95%CI 1.12-2.70) after adjustments for age, sex, smoking, education, level of care and lung function. There was no significant difference in mortality for patients with diabetes or depression.
Conclusion: Heart disease, hypertension and underweight were in this study associated with higher mortality in COPD patients.

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Do patients suffering from heart failure (HF) and chronic obstructive pulmonary disease (COPD) tolerate beta blocker (BB) treatment?

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Justification and objectives: In clinical practice the use of BB in patients with COPD is frequently avoided due to the risk of their inducing bronchospasm. Nevertheless, cardioselective BB use under strict monitoring may be well tolerated by and beneficial for many patients with HF and COPD.
Methods: We analized our experience with patients suffering from both HF and COPD who were given outpatient BB treatment. Those suffering from severe COPD were excluded.
Results: The group to be treated was made of 43 patients aged 63±8 with an average fraction ejection of 29, 2±6%, 60% of them of ischemic heart disease etiology. Patients were separated in two groups: Group A, patients with airways obstruction and significant reversibility after bronchodilator test (FEVI>80 y FEV1/FVC <0,7). Group B patients with confirmed fixed airways obstruction mild or moderate (FEV1 75.45±7.75%. FEV1/FVC 0.60±0.51). All patients started treatment with BB in low doses, which were gradually increased up to maximum tolerated ones, no acute episodes of respiratory failure being shown in a 11±3 months follow-up care period. The BB dosage had to be limited before reaching optimal levels in just 5 patients due to worsening dyspnea. According to NYHA classification, their functional status improved after the use of these drugs (p<0,01).
Conclusion: The use of BB under specialized cardiologist monitoring can be beneficial for patients suffering from both HF and mild-moderate COPD. The consequences of depriving patients of this treatment could be more harmful than the possible respiratory complications that might set in after its administration.

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Dysfunctional breathing in asthma patients

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Dysfunctional breathing (DB) coexisting with BA presents difficulties for clinicians. Criteria to distinguish these conditions are not defined. This study was aimed at investigating DB in patients with or without BA.
Methods: This was a single-center cross-sectional study. We used the language of dyspnoea, HADS scale, the Nijmegen questionnaire, spirometry, capnometry, and blood gas analysis.
Results: 29 BA patients and 7 DB patients participated in the study. Of BA patients, 5 had clinical signs of DB (BA+DB group). Patients with DB and BA+DB described their dyspnoea as "*I am gasping for breath*" (28.6% and 40%, respectively, vs 4.2% of "pure" BA) and "*My breathing requires more concentration*" (42.9% and 42.9% vs 10.3%, respectively). Only 1 BA patient (4%) described expiratory difficulties. FEV_1 was 2.35±0.95 *L* in "pure BA"; 2.08±0.62 *L* in BA+DB and 3.13±0.9 *L* in DB group (p<0.05). Anxiety, hyperventilation and blood hypocapnia prevailed in BA+DB group; median HADS-A scores were 12.0 (11.0 – 13.0), 9.0 (4.0 – 11.0) and 7.0 (3.0 – 8.0), the Nijmegen scores were 30.0 (27.0 – 31.0); 21.0 (15.0 – 32.0) and 14.5 (8.0 – 25.5) in BA+DB, DB and "pure" BA groups, respectively.

Anxiety and hyperventilation in asthma patients with and without dysfunctional breathing

	"Pure" BA group	BA + DB group	DB group
HADS-A >8	20.8	80*	42.9
Nijmegen >23	33.3	100*	42.9
Alveolar hypocapnia	11.5	20	57
Arterial hypocapnia	33	100	25

Data are given in % of patients. *p<0.05 vs "Pure" BA group.

Conclusion: Most BA patients perceive inspiratory dyspnoea but its quality depends on coexisting DB. Alveolar and arterial CO_2 are not indicative in up to 75% of patients with DB. Therefore, distinguishing DB from BA should be primarily based on verbal descriptions of dyspnoea.

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COPD disease severity stratification obtained by electronic review of routinely collected primary care data

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In COPD there are as yet many unknowns with regards to quantification by severity strata and identification of high risk patients. As part of an incentivised COPD improvement scheme, the clinical notes of 310.924 patients were reviewed electronically. COPD severity was categorised by lung function and the DOSE index to ascertain their need for medical intervention based on health status and exacerbation history.
Results: 4214 had COPD as a coded diagnosis (prevalence 1.4%). of which 609 (14.5%) did not conform to NICE spirometric criteria for COPD (FEV1>80% predicted) and 525 were of unknown severity. Further stratification employing the multicomponent DOSE index with a cut off score of 4 revealed 177 high risk patients, suitable for active case management.

Stratification based on % predicted FEV1

Severity	% of those with COPD	Number (3080)*
Mild	14.2	438
Moderate	49.8	1534
Severe	28.8	887
Very severe	7.2	221
DOSE >4	6.4	177

*DOSE patients counted twice.

Current individual management was assessed comparing status and treatment against NICE COPD guidelines; Recommendations: 23.7% update spirometry; 17.8% oxygen saturation assessment;38.8% refer for pulmonary rehabilitation. Pharmacologically, 56.1% were receiving optimum therapy;11.2% were receiving no therapy.
Discussion: The use of electronic record review at practice level facilitates quantification, stratification and classification of patients by disease severity. This should facilitate individualised patient management by permitting therapy mapping and identifying patients at most risk of exacerbation/hospitalisation who merit more frequent review. At a population level, healthcare planning is facilitated.

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Integration of COPD management across primary and secondary care: Feasibility and impact

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Introduction: Integration of COPD treatment across primary and secondary care

aims to maximize resources, reduce waste, and optimize care. We evaluated a service innovation in COPD across two hospitals and two primary care trusts (PCTs) between 2008 and 2011.
Method: Five enhanced services: hospital-based admission-response; integrated pulmonary rehabilitation (PR); intermediate care COPD service; bespoke electronic COPD clinical record; 24/7 emergency telephone support service. The evaluation used routinely collected data to assess COPD admissions, primary care COPD prescribing, contacts in the new services, interventions and outcomes in the intermediate care service, and impact of 24/7 telephone support, and compared outcomes to two adjacent PCTs.
Results: 6068 patients with COPD were identified in a population of 511,000 served by 98 practices. 2308 (38%) patients were referred to PR, an increase of 35%. 1100 patients were seen by the admission response service, 1230 in the intermediate care service, and 453 were registered to use the 24/7 emergency telephone line. Average admissions were 980/year, stable during the project, and did not differ from admissions in 2.75 years before the project. Steady increase in prescribing of tiotropium and of inhaled combination long-acting bronchodilators and corticosteroids. No differences in numbers of COPD admissions or prescribing rates compared to two adjacent PCTs over the same period. No differences in admissions compared to 29 London PCTs
Conclusions: No impact of integrated COPD care was seen despite substantial numbers of patients and practices taking part. Rising prescriptions of COPD drugs were not reflected in a fall in admissions.

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Comorbidities at time of COPD diagnosis
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Rationale: Comorbidities can potentiate the morbidity of chronic obstructive pulmonary disease (COPD), and vice versa. Patients with COPD often die as a result of comorbidities.
Objectives: Evaluate prevalence of comorbidities at COPD diagnosis in real-world patients over a 10-yr period.
Methods: Retrospective study using data from the United Kingdom's General Practice and Optimum Patient Care research databases. Eligible patients were: ≥40 yrs; received first COPD diagnostic code between 1990–2009; prescribed ≥2 COPD therapies in the year following diagnosis, had ≥2 yrs clinical data prior to diagnosis. Prevalence of asthma, ischaemic heart disease (IHD), gastroesophageal reflux disease (GERD) and diabetes mellitis (DM) were evaluated using diagnostic codes and (for GERD and DM) prescribing records before COPD diagnosis.
Results: 38,859 eligible patients: 52.6% male, diagnosed with COPD at median (IQR) age 68 (60–75)yrs. Over the period, asthma was recorded in 53.3% of patients, falling from 71.1% in 1990 to 29.7% by 2008. In the 2 yrs prior to their COPD diagnosis, 7.7% of patients consulted for IHD and 18.5% consulted, or received prescriptions, for GERD and 9.6% for DM. The percentage of patients consulting for comorbidities prior to COPD diagnosis increased over the study period: IHD from 6.5% in 1990 to 11.5% in 2009; GERD from 1.5–8.4% and DM from 4.4–12.5%.
Conclusions: These data confirm the presence of comorbidities in a substantial proportion of the UK COPD population. Trends over the study period suggest better differentiation of asthma and COPD diagnoses in recent years. The increasing prevalence of comorbidities may indicate increased awareness of comorbidities or improved diagnosis of COPD in patients treated for comorbidities.

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Short-term outcomes in community heart failure patients with chronic obstructive pulmonary disease
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Aims: Heart failure (HF) and chronic obstructive pulmonary disease (COPD) are common co-morbidities. The combination presents diagnostic challenges and has been linked with worse prognosis in patients admitted to hospital. There is hardly any prognostic data in patients with both co-morbidities in the community.
Methods and results: We evaluated 783 patients (27.2%) with left ventricular systolic dysfunction under the care of a regional nurse-led community heart failure team between June 2007 - June 2010. 101 patients (12.9%) also had a diagnosis of COPD. 94% of patients were on loop diuretics; 83% on ACE Inhibitors, 74% on β-blockers; 9.6% were on bronchodilators and 42% on aldosterone antagonists. Mean age of the patients was 77.9±5.7 years; Mean follow-up was 28.2±2.9 months. β-blocker utilization was markedly lower in patients receiving bronchodilators compared to those without (overall 24.4% vs 81%; P<0.0001). 24 month survival was 93% in patients with HF alone and 89% in those with both co-morbidities (P=NS) The presence of COPD was associated with increased HF hospitalizations [HR 1.56 (1.4-2.1); P<0.001] and major adverse cardiovascular events [HR 1.23 (1.03-1.75); P<0.001].

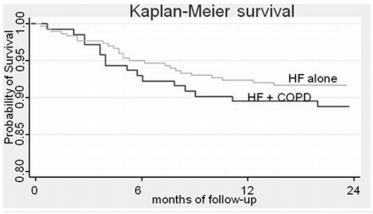

Figure 1. Kaplan-Meier survival curve in patients with heart failure, comparing those with and without chronic obstructive pulmonary disease for June 2007 to June 2010

Conclusions: COPD is a common co-morbidity in ambulatory HF patients in the community and is a powerful predictor of worsening HF. It does not however appear to affect short-term mortality in ambulatory HF patients.