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Prevalence and impact of urinary incontinence in men with chronic obstructive pulmonary disease: a questionnaire survey

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Abstract

Objectives To identify urinary incontinence and its impact on men with stable chronic obstructive pulmonary disease (COPD) and men without lung disease.

Design Prospective questionnaire study.

Setting Outpatients attending a public metropolitan hospital.

Participants Men with COPD ($n = 49$) and age-matched men without lung disease ($n = 36$).

Interventions Validated questionnaires to identify the prevalence and impact of urinary incontinence.

Main outcome measures Prevalence of urinary incontinence and relationship with disease-specific factors, and relationship of urinary incontinence with anxiety and depression.

Results The prevalence of urinary incontinence was higher in men with COPD ($n = 19/49$) compared with men without lung disease ($n = 6/36$; $P = 0.027$). In men with COPD, symptoms of urgency were more prevalent in men with urinary incontinence ($P = 0.005$), but this was not evident in men without lung disease ($P = 0.101$). Only men with COPD reported symptoms of urgency associated with dyspnoea, and this did not vary between men with and without urinary incontinence ($P = 0.138$). In men with COPD, forced expiratory volume in 1 second (FEV₁) was lower in those with urinary incontinence compared with those without urinary incontinence {mean 38 [standard deviation (SD) 14] % predicted vs 61 (SD 24) % predicted; $P = 0.002$ }. The impact of urinary incontinence did not differ between the two groups ($P = 0.333$).

Conclusions Incontinence is more prevalent in men with COPD than in men without lung disease. The prevalence of urinary incontinence increases with greater disease severity, as reflected by lower FEV₁. Screening for urinary incontinence should be considered in men with COPD and compromised lung function.

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Keywords: Chronic obstructive pulmonary disease; Urinary incontinence; Men; Aged

Introduction

Chronic obstructive pulmonary disease (COPD) is a progressive and disabling condition defined by chronic air-flow limitation that is not fully reversible [1]. COPD is

associated with age and is more common in men [2]. Increasingly recognised as a complex, heterogeneous and multicomponent condition, symptoms of COPD include progressive exercise intolerance, dyspnoea and chronic cough. The presence of comorbidities further compounds disease severity through symptom burden, functional performance and health status [3,4].

Incontinence is a common health problem in the general population. Urinary incontinence (UI) is defined by the International Continence Society as any involuntary leakage of

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urine [5]. Reported prevalence varies with the definition of UI and the threshold used, but the incidence of UI increases with age, with an estimated prevalence of 15% in community dwelling men over 70 years of age [6]. When evaluated separately, both UI and COPD result in significant impairment of quality of life (QOL) compared with age-matched healthy men [7].

A number of specific factors may increase the likelihood of UI in people with COPD, in addition to common risk factors including age and obesity. Dyspnoea is a common feature that has been described in association with impaired sphincter control in some patients [8]. Chronic cough is another common symptom that places increased stress on the pelvic floor and may affect UI. Physical impairment due to dyspnoea is common in people with advanced COPD, and increases the risk of developing UI [9]. People with COPD also have impaired lung function, and this has been shown to have an inverse association with UI in older men [10].

UI has been demonstrated to be a significant clinical problem in women with COPD [9,11,12]; however, findings in men with COPD have been inconsistent [11–13]. It is difficult to estimate the true prevalence of UI in men with COPD as a direct comparison with men without lung disease has never been undertaken. As such, this study investigated the prevalence and impact of UI in men with COPD compared with age-matched men without lung disease to determine the significance of the clinical problem in this population.

Methods

Design

This study received institutional ethical approval from Alfred Health, La Trobe University and the University of Melbourne, and all participants provided informed written consent.

Participants

Men with a confirmed diagnosis of COPD according to the Global Initiative for Chronic Obstructive Lung Disease criteria [forced expiratory volume in 1 second (FEV₁)/forced vital capacity <70%] [2] and who were clinically stable were recruited through outpatient clinics and pulmonary rehabilitation.

Healthy men were sought as volunteers in response to recruitment flyers located at both hospital sites. Men with no history of diagnosed respiratory disease (e.g. asthma) and smoking history <10 pack-years were eligible for inclusion.

Exclusion criteria for both groups were language, cognitive or other impairment precluding self-completion or understanding of study questionnaires.

Intervention

A general questionnaire was designed to gather information about risk factors for UI including age, body mass index, fluid intake, medications and comorbidities (Table A, see online supplementary material). The hospital medical records of men with COPD were also reviewed to confirm medications and comorbidities. Medications and comorbidities were categorised as ‘relevant’ based on prior documented associations with UI [14–21]. Categories of relevant medications were antidepressants, narcotics, laxatives, diuretics, analgesics, tranquilisers, blood pressure medications, cardiac medications and anticonvulsants. Categories of relevant comorbidities were back pain, neurological disorders, arthritis, diabetes, cardiac conditions, hypertension and depression. Any reported prostate history or surgery in the questionnaire or noted in the medical record were recorded separately and dichotomised (yes/no).

Information about symptoms of COPD, including cough (frequency), sputum production, disability associated with dyspnoea (modified Medical Research Council score [22], included in Table A, see online supplementary material) and disease severity indicated by the degree of airway obstruction (FEV₁% predicted from most recent spirometry [23]), was also collected. The Hospital Anxiety and Depression Scale was used to screen for symptoms of anxiety and depression (score 0 to 21 for each domain, score ≥8 indicates borderline or case for referral [24]).

For information regarding UI, all participants also completed:

- the International Consultation on Incontinence Modular Questionnaire (ICIQ) Short Form – a self-completed, brief and robust measure widely used to assess the frequency and amount of leakage, as well as the overall subjective impact of UI (the extent to which symptoms bother or burden the individual) using a visual analogue scale (score 0 to 10) [25]; and
- the ICIQ Male Lower Urinary Tract Symptom (ICIQ-MLUTS) questionnaire – a standard tool developed specifically to evaluate the symptomatology and ‘bothersomeness’ of lower urinary tract problems for the individual [26]. Subscale scores are allocated for ‘voiding symptoms’ (score 0 to 20, commonly associated with prostate enlargement) and ‘incontinence symptoms’ inclusive of symptoms of urgency and stress UI. Stress UI is the complaint of involuntary leakage on effort or exertion, or on sneezing or coughing. Urge UI is the complaint of involuntary leakage accompanied by or immediately preceded by urgency; however, the symptom of urgency is the complaint of a sudden compelling desire to pass urine that is difficult to defer, and is suggestive of lower urinary tract dysfunction [5].

The presence of UI was dichotomised (yes/no) and defined as report of UI on any of the outlined measures.

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