



Inhaled Anticholinergics for Chronic Obstructive Pulmonary Disease in the Elderly

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Chronic obstructive pulmonary disease (COPD) has an estimated prevalence of 15% among people aged above 65 years [1]. While morbidity is considered to increase with age, it is also hypothesised that this could be further enhanced by associated comorbid conditions including cardiovascular disease and diabetes [2-4]. COPD usually occurs as a result of exposure to smoking or other noxious particles in combination with genetic predisposition [3]. Subsequent chronic inflammatory processes in the lungs result in loss of elasticity and plugging of the small airways as well as parenchymal destruction [5]. People with COPD often experience respiratory symptoms including: breathlessness, chronic cough, increased sputum production and purulence, wheezing and tightness of the chest; these are often compounded by fatigue, anxiety and depression [3]. Stable COPD is punctuated by periods of exacerbation, whereby the above symptoms are acutely worsened in response to either an infective or non-infective trigger [6]. Underlying mechanisms for these episodes include; increased mucosal oedema, thickened sputum and additional constriction of the airways [7]. A novel treatment which would slow the progression of lung function decline associated with age and COPD is desirable and of increasing interest [8]. Hence, currently inhaled bronchodilators are a staple of management of the occurrence and prevention of COPD [3]. These are separated into long and short acting depending on their time to, and duration of, effectiveness. Within these groups are beta-2 agonist and anticholinergic agents, which may be given either as mono or combination therapy.

Anticholinergic agents work by binding to muscarinic receptors in the lung to inhibit the constriction initiated by acetylcholine expressed via the cholinergic nerves [9]. However, muscarinic receptors are not localised to the lungs and anticholinergic effects may result in adverse effects, with increased risk to elderly and frail patients. Anticholinergic drugs have wider applications than simply inhaled forms for respiratory management, they are present in: anti-Parkinson, antispasmodic, mydriatic and antiemetic medications. Furthermore, it is likely that elderly patients are taking one or more of the following medications, which may produce anticholinergic side effects: anti-arrhythmic, antihistamines, muscle relaxants, antidepressants and psychotics as

well as anti-ulcer and diarrhoea drugs [10]. Figure 1 demonstrates potential anticholinergic adverse effects and how they may manifest in severity.

Anticholinergic agents are recommended for management of stable and exacerbations of COPD [3,8]. However, considering their association with adverse events which may have heightened risk to elderly and frail patients, the necessity of their addition to treatment plans should be further assessed. Given the burden of anticholinergic drugs likely to be consumed by elderly people on a daily basis, it may be desirable to eliminate their use where possible, thus, the necessity of inhaled anticholinergics for the management of COPD in the elderly should be further investigated.

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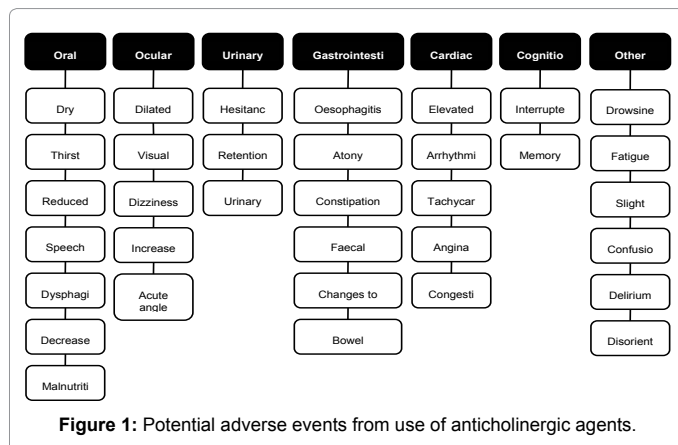


Figure 1: Potential adverse events from use of anticholinergic agents.

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