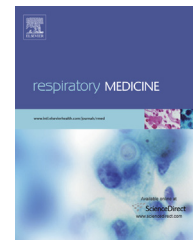


Available online at www.sciencedirect.com

ScienceDirect

journal homepage: www.elsevier.com/locate/rmed

Lung function impairment increases with age of diagnosis in adult onset asthma[☆]

Celeste Porsbjerg^{a,b,*}, Peter Lange^{c,d,e},
Charlotte Suppli Ulrik^{b,d}

^a Department of Respiratory Medicine, Bispebjerg Hospital, Denmark

^b Institute of Clinical Medicine, University of Copenhagen, Denmark

^c Department of Public Health, University of Copenhagen, Denmark

^d Department of Respiratory Medicine, Hvidovre Hospital, Denmark

^e The Copenhagen City Heart Study, Frederiksberg Hospital, Denmark

Received 11 January 2015; accepted 9 April 2015

KEYWORDS

Asthma;
Older adults;
Adult onset;
Diagnosis;
Lung function

Summary

Background: Asthma-onset in older individuals has been associated with an accelerated decline in lung function, but direct comparisons with younger adults have not been reported. **Methods:** In a random population sample comprising 4983 individuals from the Copenhagen City Heart Study without asthma at baseline, we compared young (<35 years), middle-aged (35–64 years) and older (>64 years) adults with newly diagnosed asthma during a 10-year follow-up.

Results: The proportion of cases with newly diagnosed asthma during follow-up was similar across age groups (Older adults: 7% (84/1168), middle-aged adults: 7% (223/3147), and young adults: 6% (42/668) ($p = ns$)). In all three age groups, lung function was reduced at baseline in subjects who were subsequently diagnosed with asthma, but most pronounced in those >35 years. (Mean FEV₁%: Young 90.2% (± 13.9), middle-aged 80.8% (± 20.8), and older adults 80.8% (± 24.2), $p < 0.001$). Furthermore, incident asthma was associated with an accelerated decline in lung function in older adults (young adults 11.0 mL/year, middle-aged adults 18.2 mL/year, and older adults 30.8 mL/year). These differences were independent of FEV₁ at baseline and smoking status, and were not explained by undiagnosed asthma in older adults, as the frequency of respiratory symptoms, including wheeze, was similar in all three age groups at baseline.

Abbreviations: FEV₁, Forced expiratory volume in 1 s; FVC, Forced Vital Capacity; CMH, Chronic mucus hypersecretion.

^{*} The Copenhagen City Heart Study was performed at Rigshospitalet, National University Hospital of Denmark, and Bispebjerg University Hospital, Copenhagen, Denmark.

^{*} Corresponding author. Respiratory Research Unit, Department of Respiratory Medicine, Bispebjerg Hospital, Bispebjerg Bakke 23, 2400 Copenhagen NV, Denmark.

E-mail addresses: porsbjerg@dadlnet.dk (C. Porsbjerg), plange@dadlnet.dk (P. Lange), csulrik@dadlnet.dk (C.S. Ulrik).

<http://dx.doi.org/10.1016/j.rmed.2015.04.012>

0954-6111/© 2015 Elsevier Ltd. All rights reserved.

Please cite this article in press as: Porsbjerg C, et al., Lung function impairment increases with age of diagnosis in adult onset asthma, Respiratory Medicine (2015), <http://dx.doi.org/10.1016/j.rmed.2015.04.012>

Conclusions: Asthma was diagnosed as frequently in older as in younger adults. Preexisting symptoms were equally common, but lung function was more reduced pre-diagnosis, and declined more rapidly in older adults. This emphasizes the need for a high level of therapeutic attention in patients with asthma diagnosed late in life.

© 2015 Elsevier Ltd. All rights reserved.

Introduction

Asthma starts in childhood and young adulthood in the majority of cases, but asthma in older individuals is equally common, with prevalence rates reported to be around 6–10% [1,2]. Furthermore, given that asthma is a chronic disease with a low remission rate, the epidemic of asthma among younger individuals during the past decades, the proportion of asthmatics among the older adults is expected to increase.

Asthma seems to be more difficult to control in the elderly and older patients with asthma have a higher morbidity and mortality compared to younger asthmatics [3–5]. A central question is whether asthma is more severe in older individuals, or whether the increased morbidity relates to a combination of long-standing asthma, delayed diagnosis and under treatment, higher prevalence of comorbidities such as bronchiectasis, general deconditioning, and life-time exposures to potential noxious factors such as smoking and infections [4,6,7].

Asthma appears to have more detrimental effects on the airways of older adults. Older individuals with asthma are more likely to have fixed airflow obstruction at the time of diagnosis, as well as a subsequent accelerated loss of lung function [1,8–10]. Moreover, co-existing obstructive airways diseases increase with age, and possibly up to 30% of adults >60 years with airflow obstruction have been estimated to have the asthma and COPD overlap syndrome (ACOS), i.e. a mixture of variable and reversible airflow obstruction and fixed airflow limitation [11–13].

Non-reversible airflow obstruction in older adults with incident asthma could relate to a pre-existing decrement, or to an accelerated decline in lung function [2,9,12]. However, there is limited evidence from representative, unselected populations, comparing lung function in older adults versus young adults with newly diagnosed asthma. Hence at this point, it is unclear to which degree older adults have a higher loss of lung function compared to young adults with new onset asthma.

Under-recognition of the possibility of asthma, and misinterpretation of respiratory symptoms in older adults may result in delayed diagnosis, which may lead to development of non-reversible airflow obstruction [6,15]. The majority of older adults with incident asthma experience respiratory symptoms years before being diagnosed with asthma [6,16,17], which suggests a diagnostic delay [6,15]. A recent study indicates that even in a specialist setting, the level of diagnostic assessment is lower in older adults referred on a suspicion of asthma [18]:

Irreversible airflow obstruction has evident negative impacts on quality of life and exercise capacity, but has

furthermore been shown to increase mortality in older adults with asthma [19–21]. It is therefore important to recognise the increased risk of lung function reduction in older adults with asthma [1,22,23].

The Copenhagen City Heart Study (CCHS) is a large random sample of the adult general population of Copenhagen, Denmark, followed prospectively over four decades. In the present analysis of data from CCHS, we wished to examine the relationship between age at the time of an asthma diagnosis in adulthood, and lung function impairment, by comparing young, middle-aged and older adults with newly diagnosed asthma during a 10-year follow-up period. We hypothesized that asthma diagnosed late in adulthood is associated with a higher likelihood of pre-existing lung function impairment, as well as an accelerated decline in lung function.

Methods

All individuals participated in the Copenhagen City Heart Study (CCHS), an ongoing epidemiological study of the inhabitants of the inner city of Copenhagen, Denmark [24]. Details on study design, selection procedure, description of the non-responders together with the complete examination program have been presented elsewhere [24].

In the present analysis, we used data from the 3rd and 4th examination of The Copenhagen City Heart Study: The 3rd examination was performed from 1991 to 1994, and a total of 10,135 participants were examined. The 4th examination was performed in 2001–2003, and a total of 6,237 participants were examined. Only subjects ($n = 4,983$), who participated in both examinations, and who did not self-report asthma at the 3rd examination were included in the present analysis.

In the present paper, the third and fourth examinations are termed “Baseline examination” and “Follow-up examination” respectively. The local ethics committee approved the study protocol, and informed consent was obtained from all participants (KF100.2039/91).

The diagnosis of asthma was defined by an affirmative response to the question: ‘Do you have asthma?’ This definition is in keeping with the convention of most epidemiological studies by relying on the subjects’ perception of whether or not they have the disease [25,26].

In both examinations Forced Expiratory Volume at 1 s (FEV_1) and Forced Vital Capacity (FVC) were measured with the same dry wedge spirometer (Vitalograph, Maidhead, UK), which was calibrated weekly with a 1-L syringe. At least two measurements of FEV_1 and FVC differing by less than 5% had to be produced and the best FEV_1 was used in the analyses. The use of bronchodilators prior to

Download English Version:

<https://daneshyari.com/en/article/6241521>

Download Persian Version:

<https://daneshyari.com/article/6241521>

[Daneshyari.com](https://daneshyari.com)