Importance of definitions and population selection in work-related asthma

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Although recognized for many years (1-3), work-exacerbated asthma (WEA) (also known as work-aggravated asthma), has received increased attention over the past decade. It is distinct from occupational asthma (OA) in that it is considered to be asthma that is worsened but not caused by work exposure(s), and it comprises a significant proportion of all work-related asthma as recently reviewed in detail in an American Thoracic Society Statement (4).

In the current issue of the *Canadian Respiratory Journal*, Henneberger et al (5) (pages 159-164) illustrate the differences that can occur in the characterization of WEA when patients are identified from two studies using different criteria in different centres. In this study, two groups of patients previously identified in a research centre as having WEA were compared: one group from a previous study of asthma patients in a United States health maintenance organization practice, by means of diaries recording symptoms, asthma medication use and spirometry during workdays and nonworkdays; and the other group from a tertiary referral centre for work-related asthma in Quebec. Although the referral sources were not specified in the latter group, such referrals are generally made to tertiary centres when additional tests are needed to clarify the diagnosis for clinical and/or compensation purposes. Indeed, patients in that group underwent specific inhalation challenge testing, suggesting that the pretest history suggested the possibility of OA caused by work, which is usually suspected in the context of new-onset asthma starting during work and often in the context of exposure to a recognized workplace sensitizer.

Given the differences in selection from the two centres, it is perhaps not surprising that the two cohorts showed significant differences. It may be expected that most cases of WEA seen in primary care practice would exhibit relatively transient worsening of asthma at work (such as office workers exposed to increased levels of dust during construction, or an unusual exposure to fumes or gases) and may be managed by their physician without specialist referral, whereas a tertiary clinic would be more likely to see patients referred with frequent or daily work-related symptoms, or those in whom the differential diagnosis includes OA. In fact, the two groups differed substantially according to the industries and occupations where the cases worked (ie, tertiary clinic cases mostly worked in manufacturing or production compared with the primary care cases), findings also consistent with claims from the Ontario Workplace Safety and Insurance Board, where claims were mainly for transient exacerbations and the most common occupational groups were health care, education and service sectors (6-8). Not surprisingly, the patients from the tertiary care centre had more physician visits in the past year than the primary care patients.

The study nicely illustrates the important differences and conclusions that may be drawn from studies performed in differing settings. The tertiary care author has previously published findings from her clinic that have shown a similar proportion of patients with WEA and with OA, in contrast to studies from an Ontario Workplace Safety and Insurance Board file-review (in which most transient claims of a few days or less with a compatible exposure at work were accepted without documentation of pulmonary function during the exacerbation), that have included mostly transient episodes of worsening of asthma and reported a frequency of WEA that is up to seven times greater than that of OA (6).

For the other form of work-related asthma, OA, differences in severity or referral pattern may also explain the wide differences in estimates of incidence from epidemiological studies (9) compared with estimates from clinic or workers' compensation data (10). While it is likely that tertiary clinic data and workers' compensation data, or surveillance systems for OA (typically requiring specialist investigation and objective documentation of the work relationship for OA diagnosis) underestimates the true prevalence of OA, it is likely that epidemiological studies of work-related asthma and compensation claims for WEA based on history and exposure information at work will lead to an overestimate. The true estimates for incidence and prevalence likely fall somewhere between these two extremes. While it is important to recognize the value of both types of study, ideally, future epidemiological studies would include a validation cohort with more detailed investigations to allow more accurate estimations, as has been suggested in a recent methods review article (11).

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