Title (250 max=number of characters including spaces):

Occupational exposure and asthma control: a longitudinal analysis controlling for the healthy worker effect (107)

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Abstract:

Occupational exposure is a risk factor for asthma. However, its impact on asthma control, the main target of asthma management, has rarely been studied. The healthy worker effect (HWE) can affect occupational studies. We aimed to investigate the effect of occupational exposures on asthma control in a longitudinal study, taking into account a potential HWE by a marginal structural model (MSM).

Methods:

Analyses were conducted in EGEA (Epidemiological study on the Genetics and Environment of Asthma), a case-control and family-based study (EGEA1: 1991-1995), with 2 follow-ups (EGEA2: 2003-2007; EGEA3: 2011-2013). Occupational exposure (no, “irritants and/or low level of chemicals/allergens”, “known asthmagens”) was defined using an asthma-specific job-exposure matrix. Asthma control was defined using international guidelines (GINA 2014); subjects with partly controlled/uncontrolled asthma were compared to those with controlled or non-current asthma. Associations between occupational exposures and asthma control were evaluated among subjects with asthma using (1) a standard pooled multinomial logistic model and (2) a MSM to control the HWE modeled as a time-varying confounding situation.

Results:

Asthma was partly controlled or uncontrolled in 39% of person-periods (n=822). Occupational exposure to “irritants and/or low level of chemicals/allergens” and to “known asthmagens” was observed in 14% and 13% of all person-periods, respectively. In the standard analysis, after adjustment for age, sex, smoking status and time period, no statistically significant association was found between exposure to “irritants and/or low level of chemicals/allergens” (OR [95%CI]: 0.91 [0.58-1.41]) or “known asthmagens” (1.27 [0.79-2.04]) and partly controlled/uncontrolled asthma. Using the MSM, the association remained similar for exposure to “irritants and/or low level of chemicals/allergens” (0.86 [0.55-1.35]) whereas the association increased for “known asthmagens” (1.55 [0.96-2.52], p=0.08).

Conclusion:

No significant association between occupational exposure and asthma control was observed; however after correcting for a HWE using a MSM, a positive association between exposure to known asthmagens and partly controlled or uncontrolled asthma was suggested. Results support the presence of a healthy worker effect in the study and the deleterious effect of exposure to asthmagens on asthma control.