

Serum Ige Levels Among U.s. Workers - National Health And Nutrition Examination Survey (nhanes), 2005–2006

J. M. Mazurek¹, D. N. Weissman¹

¹National Institute for Occupational Safety and Health, Morgantown, WV

Rationale: Work-related asthma (WRA) includes occupational asthma (i.e., asthma induced by sensitizing or irritant work exposures) and work-exacerbated asthma (i.e., preexisting or concurrent asthma worsened by work factors). Over 350 agents have been associated with WRA including at least 175 sensitizers. WRA induced by an immunoglobulin E (IgE)-mediated mechanism is similar to non-occupational allergic asthma. Atopic phenotype, defined based on the presence of IgE antibodies, is an important risk factor for WRA and some data suggests that it may also occur as a consequence of workplace exposures.

Objective: To estimate the prevalence of atopy among currently employed workers aged ≥ 16 years using the 2005–2006 NHANES.

Methods: Data for currently employed survey participants aged ≥ 16 years were analyzed. Currently employed survey participants were those who responded "working at a job or business," or "with a job or business but not at work" when asked about the type of work done during the week before the interview. Total serum IgE (n=3,031) and 15 inhalant allergen-specific IgE antibodies (n=3,002) test results were examined. A total serum IgE positive test result ≥ 100 kUA/L was considered indicative of atopy. The prevalence of sensitization, defined as at least one positive (≥ 0.35 kUA/L) allergen-specific IgE test, was also assessed.

Results: An estimated 140 million persons were aged ≥ 16 years and currently employed. The median total serum IgE level was 40.0 kU/L (interquartile range: 14.7–106.6 kU/L) and varied among subpopulations. The median total serum IgE level was highest in information (56.8 kU/L) industry and farming, fishing, and forestry (65.8 kU/L) occupations. Overall, 6.0% had asthma diagnosed after the age of 16 years; 26.6% were atopic; and 45.8% had at least one positive allergen-specific IgE test result (mean: 4.0 positive tests). Atopy prevalence was highest in information (36.8%) industry and farming, fishing, forestry (35.9%) occupations. Among those with atopy by total IgE, 83% had at least one positive IgE specific test result (mean: 5.4 positive tests). Of currently employed persons aged ≥ 16 years with asthma diagnosed after the age of 16 years, 35% were atopic by total IgE and 57.0% had evidence of sensitization.

Conclusions: Total serum IgE levels and atopy prevalence vary by industry and occupation. Asthma onset after the age of 16 years among workers that is not associated with atopy by total IgE or by sensitization to one of the tested aeroallergens is common.

This abstract is funded by: CDC

Am J Respir Crit Care Med 193;2016:A2990

Internet address: www.atsjournals.org

Online Abstracts Issue