

## **Characterization of Occupational Exposures of Subjects with Occupational Asthma and Work-Exacerbated Asthma.**

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The respective occupational exposures of subjects with Occupational Asthma (OA) and Work-Exacerbated Asthma (WEA) have been seldom described.

**Aim:** To characterize and compare the occupational exposures of incident cases of OA and WEA.

**Methods:** Subjects suspected of work-related asthma were enrolled in a prospective cohort study between 2005 and 2008 in two Quebec tertiary centres. Their work exposures were assessed using a questionnaire covering their employer and employment. Exposure to 45 agents, sensitizers and irritants, was coded in a semi-quantitative way as low or substantial according to a combination of indices for concentration in workplace air, frequency and reliability of exposure by an occupational hygienist who was blind to the diagnosis of WEA or OA. Specific inhalation challenges (SIC) were performed subsequently. The diagnosis of OA and WEA was made according to the results of SIC.

**Results:** Eighty-three subjects were enrolled (40 WEA, 43 OA). Substantial exposure to sensitizers was more prevalent in OA subjects (60.4%) than in WEA subjects (30%) whereas substantial exposure to irritants was more prevalent in WEA subjects (27.5%) than in OA subjects (0.6%) ( $p=0.01$ ). The distribution of exposures by group of agents differed between the two groups ( $p=0.02$ ): organic aerosols (OA: 60.4%; WEA: 22.5%), combustion fumes (OA: 16.3%, WEA 20%), gases and mists (OA: 4.6%, WEA 15.0%), inorganic dusts (OA: 4.6%, WEA 15.0%), and organic chemicals (OA: 25.6% and WEA: 30.0%).

**Conclusions:** Both the OA and WEA groups were exposed to multiple agents including both irritants and sensitizers. However, exposure to sensitizers and organic aerosols was more frequent in subjects with OA than with WEA whereas exposure to irritants was found more frequently in subjects with WEA than in subjects with OA.

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