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Toxic products inducing occupational auto-immune diseases

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Occupational exposure is a factor closely related to few immune system diseases. An association between occupational exposures of inhaled dust, and auto-immunity, was postulated as early XXe century. Genetic factors exist and affect the development of systemic autoimmune disease in certain individuals. But occupational factors could also play a substantial role. The objective was to explore the potential association between dust and airborne hairdresser's exposure inducing autoimmune diseases, more specially Systemic Lupus Erythematous (SLE).The study investigated the relationship of occupational dust inhalation exposure in hairdressing salons, and onset of SLE. Cases were defined as, those who reported having SLE, with clinical and biological confirmation. Cases were more likely to have been exposed to Hairdressing Dust Inhalation Exposure (HDIE), than other people without the disease. Onset of SLE appears in a close temporal relationship with HDIE. The development of symptoms of fatigue, myalgia, arthralgia, dysesthesias of the hands and feet and skin problems, appeared to be linked to HDIE. Moreover, increase positive autoantibodies have been observed, followed by a decrease, after cessation of HDIE. These biomarkers were dependant of HDIE. SLE may be caused by a large number of chemically unrelated agents under circumstances of exposure, which were prolonged and frequent. Agents implicated in triggering or accelerating SLE were mercury, iodine, vinyl chloride, and crystalline silica, possibly included in hairdressing products. But, it is difficult to infer correctly the exact agent because hairdressing products are made of many chemicals and mixtures. It is important to underline that dust itself has adjuvant effects. In conclusion, mechanism and epidemiology linking HDIE to development of SLE, are not well known. But these findings support the hypothesis that HDIE is frequently associated with SLE.

Recent Publications

1. Calixto O J and Anaya J M (2014) Socioeconomic status: the relationship with health and autoimmune diseases. Autoimmune Rev. 13(6):641-654.
2. Parks J C and Cooper G S (2005) Occupational exposures and risks of systematic lupus erythematosus. Autoimmunity. 38(7):497-506.
3. Noonan C W, Pfau J C, Larson T C and Spence M R (2006) Nested Case-control study of autoimmune disease in an Asbestos-exposed Population. Environ. Health Perspect. 114(8):1243-1247.
4. Garabrant D H and Dumas C (2000) Epidemiology of organic solvents and connective tissue disease. Arthritis Res. 2(1):5-15.
5. Matsumoto Y et al. (1992) An immunoserological study of patients with vibration syndrome. Int. Arch. Occup. Environ. Health. 63(8):537-539.

Biography

Frederic J Deschamps is a Medical Occupational Doctor since 1990. He is a Professor of Medicine since 2002. He manages Department of Occupational Diseases at the University Hospital of Reims. He is the Director of the Department of Occupational Health. His main topic concerns the assessment of diseases in relationship with low level toxic during long periods. He is mainly interested in: occupational health and toxicology.

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