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Vaccines and type 1 diabetes

Statement of the Problem: In predisposed subjects autoimmune reactions to vaccines can rarely be induced by molecular mimicry or bystander activation mechanisms. The pathogenesis of type 1 diabetes (T1D) is complex and derives from a combination of genetic, hormonal, immunological, and environmental factors, and viruses seem to have a determinant role among the different environmental factors.

Methodology & Theoretical Orientation: The literature about the possible association between vaccines and T1D in humans has been reviewed.

Findings: The available data do not support an association between vaccines and T1D both in young adults, or children. However, evidence about this association are incomplete and not clear as several factors appear to be involved in the development of T1D. Several experimental data have suggested that vaccines could exert a protecting or aggravating effect on the occurrence of diabetes, regarding on the timing of vaccination. In adults, a study conducted in active component US military personnel did not observe a significant increased risk of T1D after vaccination with anthrax vaccine adsorbed, smallpox vaccine, typhoid vaccine, Hepatitis B vaccine, Measles Mumps and Rubella (MMR) vaccine, or Yellow fever vaccine. Well-designed and long-term studies about the use of vaccines and incidence of childhood diabetes are ongoing.

Conclusion & Significance: Further studies are needed in order to understand the possible association between vaccines and T1D in humans.

Biography

Poupak Fallahi completed her Graduation in Medicine and Surgery in 1993 and specialized in Occupational Health Medicine in 1999 at University of Pisa, Italy. Her principal areas of expertise are autoimmune thyroid disorders, type 1 diabetes, chemokines and cytokines, systemic autoimmune disorders, HCV-associated thyroid disorders, thyroid cancer and occupational medicine. Her researches have been published in more than 218 articles on international journals (H_i=47). She serves as an Editorial Board Member and is Referee and Reviewer of many scientific international journals.

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