Vaccines and multiple sclerosis: old dilemmas, new approaches

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Background: When discussing vaccinations in general and their possible adverse effects (including demyelination), the authors offer different opinions, and sources have sometimes warned against using a certain vaccine, such as the vaccine against the yellow fever that seems to exacerbate multiple sclerosis (MS). Vaccines generally are not accused to cause the onset or an exacerbation of MS; whereas tetanus vaccine might even have a protective effect in the clinical course of MS. Discussion: Genetic and epidemiological studies have picked up populations at risk, such as those with Scandinavian or Scottish ancestry; HLA-DR2 haplotype has demonstrated linkage and association with susceptibility to multiple sclerosis. In Italy, there is a geographic region (Sardinia) where has been found an unexpectedly high prevalence of MS. Studies suggest that HLA-DR2 haplotype to be linked with demyelination after hepatitis B vaccination. Several sources underline the importance of post-infectious and post-immunisation proinflammatory cascades in the pathogenesis of demyelination; molecular mimicry, re-infection and a 'second-hit' immuno-inflammatory process are among the most elaborated models that explain satisfactorily the cascade of events. Conclusion: We suggest that a control of HLA haplotype should be a logical and precautionary measure, in subjects that due to several reasons must undergo an intense vaccination programme, toward excluding remote albeit possible demyelinating complications.