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The development of rheumatoid arthritis after recombinant hepatitis B vaccination

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Abstract

Objective: Hepatitis B vaccination has been associated with reactive arthritis and rarely rheumatoid arthritis (RA). We defined the clinical, serologic, and immunogenetic background of patients developing RA, soon after recombinant hepatitis B vaccination.

Methods: The clinical, serologic, and HLA antigens of a cluster of firefighters who developed arthritis after prophylactic recombinant hepatitis B vaccination (5 subjects), as well as a second group of sporadic cases of arthritis (6 patients) after hepatitis B vaccination are described.

Results: Ten of 11 patients fulfilled revised American College of Rheumatology criteria for RA. All cases had persistent arthritis for more than 6 months; at 48 months followup 2 cases no longer had inflammatory arthritis. Nine patients required disease modifying antirheumatic drugs. Five subjects were HLA-DR4 positive. HLA class II genes expressing the RA shared motif were identified in 9/11 patients genotyped for HLA-DRbeta1 and DQbeta1 alleles (0401, 0101, or 0404). All the firefighters shared the HLA-DRbeta1 allele 0301 and the DQbeta1 allele 0201, with which it is in linkage disequilibrium.

Conclusion: These polymorphic residues in the binding site of the MHC class II molecules of the affected patients appear capable of binding some peptide sequences of the recombinant vaccine peptides they received and may be responsible for hepatitis B vaccine triggering development of RA in these cases. Recombinant hepatitis B vaccine may trigger the development of RA in MHC class II genetically susceptible individuals.