Title
Epidemiological phenotype of non-pathogenic strains of HIV-1.

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Abstract
The phenotype of a clinically non-pathogenic strain of HIV-1 does not differ dramatically from the clinical picture of a pathogenic strain of HIV-1. One characteristic of a non-pathogenic strain of HIV-1 is the absence of AIDS symptoms, with however, a positive Western and PCR for HIV-1. This, however, is also characteristic of long latency for pathogenic HIV-1. One would presume that the cytopathology of a clinically pathogenic strain would correlate with clinical pathology but this has been shown not to be true. The main differential diagnosis of a clinical infection with a non-pathogenic strain is the observation of infectious hypervirulence. Infectious hypervirulence is an infection of a partner or a cluster of partners that shows an amelioration of AIDS symptoms or improvement in cellular immunity as evidenced by improved delayed type hypersensitivity skin test. In native partners, infection with a non-pathogenic strain can be demonstrated by the lack of clinical symptoms after at least ten years. The calculated frequency of finding a non-pathogenic strain in a population is related to the target size of pathogenicity divided by the size of the HIV-1 genome. Assuming a polio-type model for pathogenicity gives an approximate frequency of 1 individual in 400 to 600 HIV-1 positive individuals carrying a non-pathogenic strain. In addition, this predicts that an individual carrying such a strain, on the average, has had at least 400-600 different HIV-1 infected partners. On the other hand, the assumption of a small region of HIV-1 being responsible for clinical AIDS suggest the possibility of 1 in 9,500 individuals carrying a 22 nucleotide sequence creating CD4 depletion and having a negative Western and PCR for HIV-1. All three epidemiological phenotypes and their predicted frequencies have been observed and reported.

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