

How rheumatoid arthritis can result from provocation of the immune system by microorganisms and viruses

Arleevskaya M., Kravtsova O., Lemerle J., Renaudineau Y., Tsibulkin A.
Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

© 2016 Arleevskaya, Kravtsova, Lemerle, Renaudineau and Tsibulkin. The pathogenesis of rheumatoid arthritis (RA), similar to development of a majority of inflammatory and autoimmune disorders, is largely due to an inappropriate or inadequate immune response to environmental challenges. Among these challenges, infectious agents are the undisputed leaders. Since the 1870s, an impressive list of microorganisms suspected of provoking RA has formed, and the list is still growing. Although a definite causative link between a specific infectious agent and the disease has not been established, several arguments support such a possibility. First, in the absence of a defined pathogen, the spectrum of triggering agents may include polymicrobial communities or the cumulative effect of several bacterial/viral factors. Second, the range of infectious episodes (i.e., clinical manifestations caused by pathogens) may vary in the process of RA development from preclinical to late-stage disease. Third, infectious agents might not trigger RA in all cases, but trigger it in a certain subset of the cases, or the disease onset may arise from an unfortunate combination of infections along with, for example, psychological stress and/or chronic joint tissue microtrauma. Fourth, genetic differences may have a role in the disease onset. In this review, two aspects of the problem of "microorganisms and RA" are debated. First, is there an acquired immune deficiency and, in turn, susceptibility to infections in RA patients due to the too frequent and too lengthy infections, which at last break the tolerance of self antigens? Or, second, is there a congenital deficiency in tolerance and inflammation control, which may occur even with ordinary infection frequency and duration?.

<http://dx.doi.org/10.3389/fmicb.2016.01296>

Keywords

Immune system provocation, Infection, Microorganisms, Rheumatoid arthritis, Viruses