

Rheumatoid Arthritis

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Key Points

- What is rheumatoid arthritis; its causes, symptoms and treatment.
- Concept of microbiome

Rheumatoid Arthritis (RA) is an illness that influences roughly 0.5-1.0% of the populace. In many patients, it prompts joint damage because of the illness focusing on the self-antigens present in the synovium, ligament, and bone. Substantial bits of knowledge into RA pathophysiology recommend that different incendiary pathways lead to an adjusted resistant framework and beginning of disease. Presence of autoantibodies preceding the beginning of RA propose that an autoreactive invulnerable reaction happens much before the clinical manifestations show up.¹ The beginning of a dysregulated insusceptible reaction is proposed to happen because of natural impacts in the hereditarily inclined people. A few quality variations have been distinguished by the genome-wide affiliation review in RA, however the main affiliation has been seen with specific qualities present in the significant histocompatibility complex class II (MHC class II) locale. Nonetheless, a few natural and different factors, for example, topography, financial status, birth weight, diet, liquor, smoking, and host microbiome likewise add to the gamble of creating RA. Among these, smoking is known to emphatically build the gamble of creating RA. While significant exploration has zeroed in on hereditary elements, there is a developing acknowledgment that the host microbiota, and particularly the stomach microbiota, assume a critical part in the turn of events and movement of RA. Working together with the stomach related lymphoid tissue, the stomach microbiome is engaged with keeping up with invulnerable homeostasis and goes about as a mark of the wellbeing status of the host. Irritation of this communication can influence mucosal as well as fundamental resistance, and advance different provocative and immune system sicknesses. Thus, endeavors have been made to characterize the helpful microorganisms and their metabolites for their utilization in treating different illnesses. The microbiome is a collection of genomes within an ecological community of microorganisms.¹

Treatment

The microbiome is a collection of genomes within an ecological community of microorganisms. However, only about 1% of microbes are culturable, making it hard to elucidate their role in health and disease. Recent advances in deoxyribonucleic acid (DNA) sequencing technologies have enabled researchers to study the unculturable microbial communities. International efforts such as Human Microbiome Project and the Meta HIT project have helped catalog microbial genes by high-throughput next-generation sequencing (NGS).¹ Today, most of the drugs available for the treatment of RA, including disease-modifying antirheumatic drugs (DMARDs), act by targeting cytokines, nonspecific immune suppression or T-cell and B-cell activation. Thus, almost all patients are prescribed with one or more DMARDs upon the diagnosis of RA. There are two main types of DMARDs: traditional DMARDs and biologic DMARDs (bDMARDs). Traditional DMARDs are potent drugs and act *via* suppressing immune response by blocking protein synthesis and interfering in critical reactions involved in the inflammatory cascades. These DMARDs lessen the harm to bone and ligament and at last sluggish the movement of infection. Methotrexate is for the most part the main line of DMARD treatment of RA. Biologics, then again, are target explicit and specific in their system of activity. Biologics impede different cytokine creation and capacities, and repress T-cell and B-cell enactment. Other than standard medicines, elective medication, including natural prescriptions and probiotics, are additionally utilized by patients.²

References:

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human microbiome. *nature*. 2012 Jun 14;486(7402):207.

2. Kumar P, Banik S. Pharmacotherapy options in rheumatoid arthritis. *Clinical Medicine Insights: Arthritis and Musculoskeletal Disorders*. 2013 Jan;6:CMAMD-S5558.

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