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Advances in the implications of the gut microbiota on the treatment efficacy of disease-modifying anti-rheumatic drugs in rheumatoid arthritis

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Alterations in the composition or function of the gut microbiota are associated with the etiology of human diseases. Drug-microbiota interactions can affect drug bioavailability, effectiveness, and toxicity through various routes. For instance, the direct effect of microbial enzymes on drugs can either boost or diminish their efficacy. Thus, considering its wide range of metabolic capabilities, the gut microbiota is a promising target for pharmacological modulation. Furthermore, drugs can alter the microbiota and the mechanisms by which they interact with their host. Individual variances in microbial profiles can also contribute to the different host responses to various drugs. However, the influence of interactions between the gut microbiota and drugs on treatment efficacy remains poorly elucidated. In this review, we will discuss the impact of microbiota dysbiosis in the pathogenesis of rheumatoid arthritis (RA), and we will attempt to elucidate the crosstalk between the gut microbiota and disease-modifying anti-rheumatic drugs (DMARDs), with an emphasis on how drug-microbiota interactions affect the treatment efficacy in RA. We speculate that improved knowledge of these critical interactions will facilitate the development of novel therapeutic options that use microbial markers for predicting or optimizing treatment outcomes.

KEYWORDS

gut microbiota, dysbiosis, rheumatoid arthritis, immune response, DMARDs

1 Introduction

Rheumatoid arthritis (RA) is one of the most common immune-mediated disorders. Its primary manifestation is inflammatory arthritis, characterized by symmetric, polyarticular pain and swelling, frequently affecting peripheral joints (1). Despite recent significant advances in RA therapy, overall remission remains unsatisfactory, and once bone or joint

Advances In Anti Rheumatic Therapy

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Advances In Anti Rheumatic Therapy Book Review: Unveiling the Power of Words

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