IMMUNOBIOLOGICAL THERAPY FOR RHEUMATOID ARTHRITIS: EFFICACY, RISKS, AND IMPACT ON TREATMENT

https://doi.org/10.63330/aurumpub.044-009

Bianca Correia dos Santos[1], Larissa dos Reis Oliveira[2], Fernando Ramos Martins Pombeiro[3], Eduardo Caldas Ribeiro[4], Daniela Viana Maciel[5], Matheus Sales Damásio de França[6], Larissa de Souza Araújo[7], Gregório Otto Bento de Oliveira[8], Melissa Cardoso Deuner[9] and Andrea Gonçalves de Almeida[10]

Abstract

Rheumatoid arthritis is a chronic inflammatory and autoimmune disease that primarily affects women between 30 and 50 years of age, leading to progressive joint destruction and functional impairment. Given the limitations of conventional treatments, immunobiologicals emerge as an innovative therapeutic alternative because they act selectively on specific molecular targets, providing better symptom control and improved quality of life for patients. Despite their efficacy, these medications present challenges such as high cost, adverse effects, and the need for rigorous monitoring. This study was developed through a bibliographic review with a qualitative and descriptive approach, using scientific sources from the SciELO and Google Scholar databases published between 2015 and 2024. The objective was to evaluate the impacts of the use of immunobiologicals in the treatment of rheumatoid arthritis, considering their efficacy, associated risks, and implications within the context of the health system. The analysis showed that immunobiologicals contribute significantly to disease remission, reduction of physical disabilities, improvement of psychological well-being, and social reintegration of patients. However, their use requires public policies that ensure equitable access, the sustainability of the SUS, and the qualification of

[1] Faculdade Anhanguera de Brasília – FAB. DF
[2] Faculdade Anhanguera de Brasília – FAB. DF
[3] Faculdade Anhanguera de Brasília – FAB. DF
[4] Faculdade Anhanguera de Brasília – FAB. DF
[5] Faculdade Anhanguera de Brasília – FAB. DF
[6] Faculdade Anhanguera de Brasília – FAB. DF
[7] Faculdade Anhanguera de Brasília – FAB. DF
[8] Faculdade Anhanguera de Brasília – FAB. DF
[9] Faculdade Anhanguera de Brasília – FAB. DF
[10] Faculdade Anhanguera de Brasília – FAB. DF

health services. It is concluded that the adoption of this therapy requires an integrated approach involving innovation, clinical safety, and economic viability.

Keywords: Biotechnology, Pharmacotherapy, Medications, Treatment, Inflammation.

INTRODUCTION

Rheumatoid arthritis is a chronic autoimmune disease that causes inflammation in the joints, intense pain, and even loss of function. For patients who have not been successful with conventional therapies, immunobiological drugs are an innovative and hopeful alternative, as their mechanism of action includes TNF, IL-6, IL-17, and JAK inhibitors in treatment (Santos et al., 2024).

According to Finotti (n.d.), immunobiological drugs may be vaccines or antibodies administered subcutaneously, intramuscularly, or intravenously, weekly or even semiannually. They are produced from a living cell and have a complex molecular structure.

However, like any other medication, there are risks, undesirable effects, and other issues such as high cost that must be evaluated before implementing this treatment, mainly due to the various immunological processes in which immunobiologicals act (Mota, 2015).

The use of immunobiological drugs for rheumatoid arthritis has been satisfactory for users because they act more specifically, focusing on molecules that play a crucial role in inflammation, providing a more targeted treatment. There is a significant number of patients with autoimmune diseases in the population, specifically rheumatoid arthritis, and appropriate treatment is crucial to control symptoms and prevent long-term complications (Mota, 2015).

This study is relevant to the population because this disease causes a major deterioration in patients' quality of life, and it is common for conventional treatments not to work. Immunobiological drugs have had a major impact and yielded excellent results for these types of patients, making broader dissemination of information on the topic necessary.

Immunobiological drugs, although relatively recent in the pharmaceutical market and of more restricted use, still raise doubts regarding their efficacy, safety, and impact on patients' lives. In view of this, this study aims to answer the following research question: What are the impacts of the use of immunobiologicals in the control of rheumatoid arthritis, considering treatment efficacy, adverse effects, and patients' quality of life?

The general objective of this study is to evaluate the efficacy of treatment with immunobiological drugs in combating rheumatoid arthritis. To achieve this purpose, it specifically seeks to identify the main adverse effects reported by patients using these drugs, analyze the differences between the use of immunobiologicals and conventional drugs in the treatment of rheumatoid arthritis, as well as evaluate the efficacy of immunobiologicals in reducing disease symptoms and improving patients' quality of life.

DEVELOPMENT

METHODOLOGY

This research is a bibliographic review, with a qualitative and descriptive approach, on the use of immunobiologicals in the treatment of rheumatoid arthritis. The search for materials was carried out in the Google Scholar and SciELO databases, recognized in the health field for providing a broad scientific collection. Articles, dissertations, and theses published in the last ten years, between 2015 and 2024, were selected. The inclusion criteria adopted were: publications available in Portuguese and English, with full text, that directly addressed the topic of immunobiologicals applied to rheumatoid arthritis. As exclusion criteria, opinion articles, systematic reviews, abstracts without access to the full text, case reports, and non-scientific documents were disregarded. The keywords used in the searches were: "immunobiologicals," "rheumatoid arthritis," "efficacy," and "adverse effects," in addition to other descriptors that proved relevant during the course of the research.

RESULTS AND DISCUSSION

Rheumatoid arthritis (RA) is a chronic, inflammatory, autoimmune disease that affects the synovial joints and may progress with the progressive destruction of cartilage and underlying bone. Over time, this inflammation can lead to significant functional loss, directly impacting patients' mobility and quality of life. In addition, RA has the potential to cause joint deformities and permanent disabilities, making it one of the leading causes of disability in young adults. It is a disease that affects about 1% of the world population, with a higher prevalence among women, especially in the 30 to 50 age group, although it may occur at any age. Early identification and appropriate management are essential to control disease progression, minimize joint damage, and improve patients' functionality and quality of life (SBR, 2015).

Its etiopathogenesis involves genetic, environmental, and immunological factors, which contribute to abnormal activation of the immune system, which then begins to attack the body's own structures. Historically, the treatment of RA was based on symptomatic medications such as nonsteroidal anti-inflammatory drugs (NSAIDs) and corticosteroids. Later, with the introduction of disease-modifying antirheumatic drugs (DMARDs), such as methotrexate, greater symptom control and delayed disease progression were observed. However, many patients show inadequate responses or develop adverse effects with the prolonged use of these drugs (Ferreira et al., 2023).

Over the last 20 years, the emergence of immunobiologicals has represented a revolution in the treatment of rheumatoid arthritis (RA). These medications are obtained through genetic engineering, using living organisms to produce specific proteins that modulate the inflammatory response. Among these medications, monoclonal antibodies and soluble receptors stand out, whose main advantage is their highly selective action on specific molecular targets.

Among these targets, the most relevant include tumor necrosis factor alpha (TNF-α), interleukin-6 (IL-6), and B cells, all of which are involved in the pathogenesis of RA. By blocking these molecules and cells, immunobiologicals are able to significantly reduce inflammation, control symptoms, and prevent

progressive joint damage. In addition, their use has shown benefits not only in relieving pain and stiffness, but also in improving joint function and patients' quality of life, contributing to a more effective and individualized management of the disease (Andrade et al., 2020).

According to a study published by Andrade et al. (2020), medications such as infliximab, adalimumab, and etanercept demonstrated significant clinical efficacy in patients who did not respond to methotrexate, improving not only inflammatory markers but also functional scores such as DAS28 (Disease Activity Score), which is a measure widely used to assess disease activity in rheumatic diseases such as rheumatoid arthritis. The reduction of these scores is directly related to a decrease in symptoms of pain, stiffness, and swelling in the joints, leading to a substantial improvement in patients' functional capacity. In addition, there was an improvement in the quality of life perceived by patients, an aspect increasingly valued in modern therapeutic approaches, which seek not only to control clinical symptoms but also to improve overall well-being and the patient's ability to carry out daily activities. These findings reinforce the importance of personalized therapies that take into account the specific needs of each patient, especially in cases of resistance to conventional treatment.

The positive impact of immunobiologicals, however, is not without challenges. One of the main risks associated with their use is the increased incidence of opportunistic infections such as tuberculosis and hepatitis B, due to suppression of the immune system. In addition, the prolonged use of these medications can affect the patient's immune response, making them more vulnerable to severe infections and hindering the early detection of infectious diseases. This risk of infection can be even more pronounced in patients with comorbidities or in concomitant treatments that also suppress immune function. As a result, a careful approach and constant monitoring are required to ensure the safety of patients undergoing treatment with immunobiologicals, in order to minimize complications and optimize therapeutic benefits (Silva, 2019).

Thus, clinical protocols and Ministry of Health guidelines recommend prior testing for latent infections before the start of treatment, in addition to continuous follow-up during administration.

Another sensitive point is the high cost of these medications, which directly impacts population access, especially in countries with income inequality such as Brazil. Moura's study (2018), from FGV, highlights that public health policy has adopted strategies such as Productive Development Partnerships (PDPs) in order to enable the national production of immunobiologicals, such as those manufactured by the Butantan Institute, reducing dependence on imports and public health expenditures.

Access through the Unified Health System (SUS) has also been progressively expanded. Since 2013, the Ministry of Health has incorporated several immunobiologicals into the Specialized Component of Pharmaceutical Assistance (CEAF), enabling the free provision of these drugs to patients with proven clinical indication. According to the clinical protocol and therapeutic guidelines for rheumatoid arthritis of the National Committee for the Incorporation of Technologies in the SUS, the selection of the immunobiological should consider the patient's clinical history, disease severity, and prior response to conventional therapies (CONITEC, 2021).

Souza (2017) emphasizes that, despite advances in technological incorporation, logistical and bureaucratic barriers still exist that hinder the regular dispensing of these medications in the public system. Among them are the requirement for complex reports, periodic efficacy assessments, and the scarcity of specialized centers in remote areas.

On the other hand, the positive impact on patients' quality of life is widely documented. Patients treated with immunobiologicals report pain reduction, improved mobility, greater autonomy in daily activities, and return to the labor market. These effects not only alleviate personal suffering but also reduce the indirect costs associated with the disease, such as early retirement, frequent sick leave, and intensive use of health services (Nascimento et al., 2023).

In addition to the physical and functional benefits, there is also a considerable improvement in psychological well-being. Many patients experience a reduction in depressive symptoms and greater social engagement after beginning treatment with immunobiologicals, especially when there is integrated multiprofessional follow-up, as recommended by current rheumatology guidelines (Andrade et al., 2020).

In the long term, studies indicate that the continuous and appropriate use of immunobiologicals contributes to sustained disease remission, although constant monitoring is necessary for dose adjustments and substitutions with biosimilars when needed. Biosimilars, moreover, emerge as a promising alternative to reduce costs without compromising therapeutic efficacy, provided that there is adequate regulation and oversight by health agencies (Moura, 2018).

Thus, the theoretical foundation of the present study shows that immunobiologicals represent an essential advance in the treatment of RA, with positive impacts on therapeutic efficacy, quality of life, and reduction of disease sequelae. However, their adoption requires a balanced approach between technological innovation, clinical safety, economic sustainability, and equity in access.

In addition to clinical and therapeutic issues, it is essential to consider the economic and organizational aspects involving the use of immunobiologicals in the context of public health. According to Oliveira et al. (2019), in a study published in Value in Health Regional Issues, the incorporation of these medications should be accompanied by cost-effectiveness analyses that evaluate not only the direct price of treatment but also the positive impacts on productivity, reduced hospitalizations, and the lesser need for invasive procedures. Such data reinforce that, although the initial investment is high, the long-term benefits justify their adoption, especially in cases of refractory rheumatoid arthritis.

Another relevant point is the role of biosimilars, which have gained prominence as a strategy to expand access to treatment without compromising therapeutic quality. According to Mattos et al. (2017), in a study presented at SINGEP, biosimilars represent a concrete opportunity for sustainability for the SUS, provided that they are subject to rigorous regulatory processes and accompanied by active pharmacovigilance. Confidence in these products depends both on proof of clinical equivalence and on the perception of safety by health professionals and patients, which requires clarification campaigns and continuous training.

It is understood that the implementation of advanced therapies such as immunobiologicals demands a prepared health structure and multidisciplinary teams acting in an integrated manner. The

article by Reche and Santos (2021), published in the journal of Santa Cecília University, highlights that factors such as difficulties in geographic access, failures in scheduling infusions, and lack of knowledge about the disease still compromise the continuity of treatment in various services. This reinforces the need for management policies that prioritize not only the acquisition of medications but also the qualification of services and the humanization of care.

CONCLUSION

The present study achieved the general objective of evaluating the efficacy of immunobiological medications in the treatment of rheumatoid arthritis. It was possible to identify that these medications promote significant improvement in symptom reduction and in patients' quality of life, in addition to presenting a specific profile of adverse effects that requires clinical attention. The comparison between immunobiologicals and conventional treatments also showed important advantages in terms of disease control, reinforcing the relevance of these drugs as a fundamental therapeutic option for patients who do not respond adequately to traditional therapies.

However, the research encountered limitations related to the relative novelty of the topic, which is reflected in a smaller number of in-depth and available studies, as well as in the constant evolution of biological therapies. This limitation hinders an even more detailed and comprehensive analysis, especially with regard to long-term data and economic impacts in different health contexts. Moreover, barriers to access and the high costs of immunobiologicals also represent challenges that may interfere with the generalization of the observed results.

For future investigations, it is recommended that longitudinal studies be carried out to monitor the effects of immunobiologicals over longer periods, as well as research evaluating strategies to expand access to these medications, including the use of biosimilars. It would also be important to explore the integration of multidisciplinary approaches in patient follow-up, considering not only clinical aspects but also psychosocial ones. In this way, it will be possible to further consolidate knowledge about the role of

immunobiologicals in the management of rheumatoid arthritis and contribute to the continuous improvement of patient care.

REFERENCES

Andrade, L. E. C. et al. Segurança do uso de terapias biológicas para o tratamento de artrite reumatoide e espondiloartrites [Safety of the use of biological therapies for the treatment of rheumatoid arthritis and spondyloarthritis]. *Revista Brasileira de Reumatologia*, v. 60, n. 1, 2020. Available at: https://www.scielo.br/j/rbr/a/Dh56xXPgzvDbTWPPfcBhLXN/?lang=pt. Accessed on: 09 May 2025.

Conitec – Comitê Nacional de Incorporação de Tecnologias no SUS. *Relatório de recomendação: Protocolo Clínico e Diretrizes Terapêuticas – Artrite Reumatoide* [Recommendation report: Clinical Protocol and Therapeutic Guidelines – Rheumatoid Arthritis]. Brasília: Conitec, 2021. Available at: https://www.gov.br/conitec/ptbr/midias/consultas/relatorios/2021/20210623_relatorio_pcdt_artrite_reumatoide.pdf. Accessed on: 09 May 2025.

Da Silva Santos, Silas et al. Avanços na terapia com imunobiológicos para artrite reumatoide: uma revisão de literatura [Advances in immunobiological therapy for rheumatoid arthritis: a literature review]. *Caderno Pedagógico*, v. 21, n. 10, p. e8580–e8580, 2024. Accessed on: 24 Mar. 2025.

Finotti, L. Imunobiológicos: a revolução da reumatologia [Immunobiologics: the revolution of rheumatology]. [s.d.]. Available at: https://www.drleandrofinotti.com.br/artigo/imunobiologicos-a-revolucao-da-reumatologia/43. Accessed on: 14 Sep. 2025.

Ferreira, C. A. et al. Imunobiológicos no tratamento da artrite reumatoide: panorama brasileiro [Immunobiologics in the treatment of rheumatoid arthritis: Brazilian panorama]. *Brazilian Journal of Health Review*, 2023. Available at:

https://ojs.brazilianjournals.com.br/ojs/index.php/BJHR/article/view/64080/46073. Accessed on: 09 May 2025.

Mattos, A. P. F. et al. Biossimilares e a sustentabilidade do Sistema Único de Saúde: oportunidades e desafios para o Brasil [Biosimilars and the sustainability of the Unified Health System: opportunities and challenges for Brazil]. In: *SINGEP – Simpósio de Gestão da Inovação, Tecnologia e Empreendedorismo*. 2017. Available at: https://www.singep.org.br/6singep/resultado/3.pdf. Accessed on: 10 May 2025.

Mota, Licia Maria Henrique da et al. Segurança do uso de terapias biológicas para o tratamento de artrite reumatoide e espondiloartrites [Safety of the use of biological therapies for the treatment of rheumatoid arthritis and spondyloarthritis]. *Revista Brasileira de Reumatologia*, v. 55, p. 281–309, 2015. Available at: https://www.scielo.br/j/rbr/a/F5j48q3stQ7Z9xWbgkCBBrz/?lang=pt. Accessed on: 10 May 2025.

Moura, L. C. *Biotecnologia, PDPs e o mercado de imunobiológicos no Brasil* [Biotechnology, PDPs, and the immunobiological market in Brazil]. Rio de Janeiro: Fundação Getulio Vargas, 2018. Available at: https://repositorio.fgv.br/. Accessed on: 09 May 2025.

Nascimento, M. G. et al. Impacto da terapia com imunobiológicos na qualidade de vida de pacientes com AR [Impact of immunobiological therapy on the quality of life of patients with RA]. *Revista ReASE*, 2023. Available at: https://periodicorease.pro.br/rease/article/view/14627. Accessed on: 09 May 2025.

Oliveira, A. N. et al. Economic evaluation of adalimumab for rheumatoid arthritis in Brazil: analysis based on a systematic review. *Value in Health Regional Issues*, v. 20, p. 92–97, 2019. Available at: https://www.valuehealthregionalissues.com/article/S22121099(19)30418-2/fulltext. Accessed on: 10 May 2025.

Reche, A. C.; Santos, A. R. C. O uso de medicamentos imunobiológicos no tratamento da artrite reumatoide: uma abordagem prática no contexto do SUS [The use of immunobiological

medicines in the treatment of rheumatoid arthritis: a practical approach in the SUS context]. *Revista da Universidade Santa Cecília*, v. 13, n. 1, p. 85–94, 2021. Available at: http://revista.unilus.edu.br/index.php/ruep/article/view/850. Accessed on: 10 May 2025.

Silva, R. A. Avaliação dos efeitos adversos dos imunobiológicos na prática clínica [Evaluation of adverse effects of immunobiologics in clinical practice]. 2019. Available at: https://core.ac.uk/. Accessed on: [s.d.].

Sociedade Brasileira de Reumatologia. Segurança do uso de terapias biológicas para o tratamento de artrite reumatoide e espondiloartrites [Safety of the use of biological therapies for the treatment of rheumatoid arthritis and spondyloarthritis]. *Revista Brasileira de Reumatologia*, v. 55, n. 3, p. 281–310, May–Jun. 2015. Available at: https://www.scielo.br/j/rbr/a/F5j48q3stQ7Z9xWbgkCBBrz/. Accessed on: 10 May 2025.

Souza, V. H. *O acesso aos imunobiológicos no SUS: entraves e perspectivas* [Access to immunobiologics in the SUS: barriers and perspectives]. 2017. Available at: Biblioteca Digital Brasileira de Teses e Dissertações (BDTD). Accessed on: [s.d.].