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BIOLOGICAL THERAPY FOR TREATMENT OF RHEUMOTOID ARTHRITIS

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Rheumatoid arthritis (RA) is a systemic autoimmune disease affecting approximately 0,5-1% of the global population and characterized by chronic inflammatory polyarthritis with potential extra-articular manifestations. Conventional synthetic disease-modifying antirheumatic drugs (csDMARDs), particularly methotrexate, remain the cornerstone of initial therapy; however, only about one-third of patients achieve sustained remission with csDMARDs alone, highlighting the need for advanced treatment strategies. The advent of biologic DMARDs (bDMARDs) in the late 1990s, including monoclonal antibodies and receptor fusion proteins targeting key inflammatory mediators, has fundamentally transformed RA outcomes.

Tumor necrosis factor (TNF) inhibitors typically represent the first-line bDMARD option in patients with an inadequate response to methotrexate, although contemporary guidelines increasingly recommend switching to an agent with a different mechanism of action following treatment failure. Biologic agents now encompass TNF inhibitors, interleukin-6 receptor blockers, T-cell co-stimulation modulators, B-cell–depleting therapies, and targeted synthetic DMARDs such as Janus kinase (JAK) inhibitors. Indications for initiating bDMARDs include persistent moderate-to-high disease activity despite optimized csDMARD therapy and the presence of poor prognostic factors such as high seropositivity, early erosions, or high baseline disease activity.

Absolute or major contraindications to biologic therapy include severe active infections, uncontrolled chronic infections, concomitant use of more than one biologic class, and administration of live vaccines during treatment. Additional safety concerns encompass demyelinating diseases such as multiple sclerosis, moderate-to-severe congestive heart failure for certain TNF inhibitors, risk of gastrointestinal perforation with some interleukin-6 pathway inhibitors, reactivation of chronic hepatitis B, and rare but serious events such as progressive multifocal leukoencephalopathy. Despite these risks, biologic and targeted synthetic agents confer substantial benefits, including improved quality of life, better physical function, reduced fatigue, and higher remission or low-disease-activity rates compared with csDMARDs alone. Limitations include increased infection risk, injection- or infusion-related reactions, high acquisition costs, and the need for systematic screening for tuberculosis and viral hepatitis before and during therapy.

Access to biologic therapy varies significantly across health systems. In the United States, a broad spectrum of innovator biologics (e.g., etanercept, adalimumab, infliximab, golimumab, tocilizumab, abatacept, rituximab) and JAK inhibitors (e.g., tofacitinib) is available, but utilization is strongly conditioned by insurance coverage, creating disparities for uninsured and underinsured patients. In Belarus, biologics such as rituximab, tocilizumab, abatacept, adalimumab, infliximab, etanercept, golimumab, and secukinumab are reported in clinical practice, with access predominantly organized through public funding mechanisms, which reduces individual cost but may limit overall availability. Sri Lanka represents a more resource-constrained setting, with restricted use of biologics (including tocilizumab, rituximab, TNF inhibitors such as adalimumab and golimumab, and tofacitinib), where high cost remains the principal barrier to widespread adoption.

In this context, Sri Lanka has developed a mixed therapeutic model that combines conventional csDMARDs, limited biologic and targeted synthetic agents, and traditional Ayurvedic treatments. Formulations such as Seetarama Vati, Rasna Sapthakaya decoction, Murungadi Lepa external paste, and Paththu paste are integrated into clinical practice, with some products - most notably Rasna Sapthakaya - supported by phase II/III trial data in conditions analogous to RA. Biosimilar adoption is increasing in Belarus and Sri Lanka as a cost-containment strategy, whereas the United States still relies heavily on innovator biologics. Overall, biologic therapy has reshaped the prognosis of RA; however, a clear three-tiered pattern of access persists, driven largely by health-system financing and economic constraints.