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Available online at: http://www.iajps.com A Systematic Review

COMPARATIVE EFFICACY OF BIOLOGICS IN PSORIASIS TREATMENT: A SYSTEMATIC REVIEW

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Abstract:

Background: *Psoriasis is a chronic immune-mediated inflammatory skin disorder with significant physical and psychological burden. Biologic therapies targeting specific immune pathways have revolutionized its management. However, comparative efficacy among different biologics remains a critical clinical question.*

Objective: *To systematically evaluate and compare the efficacy of various biologic agents used in the treatment of moderate-to-severe psoriasis.*

Methods:*A systematic review was conducted using databases including PubMed, Scopus, and Web of Science. Randomized controlled trials (RCTs) published between 2010 and 2025 were included. Studies evaluating tumor necrosis factor (TNF) inhibitors, interleukin (IL)-17 inhibitors, and IL-23 inhibitors were analyzed. The primary outcome was Psoriasis Area and Severity Index (PASI-75 and PASI-90) response rates.*

Results:*A total of 28 studies involving over 15,000 patients were included. IL-17 and IL-23 inhibitors demonstrated superior efficacy compared to TNF inhibitors. Agents such as secukinumab and guselkumab showed higher PASI-90 response rates (>70%) compared to etanercept (~40%).*

Conclusion: *IL-17 and IL-23 inhibitors are more effective than TNF inhibitors in achieving higher clinical response rates. Personalized treatment selection should consider efficacy, safety, and patient-specific factors.*

Keywords: *Psoriasis, Biologics, IL-17 inhibitors, IL-23 inhibitors, Systematic review, PASI*

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1. INTRODUCTION:

Psoriasis is a chronic, immune-mediated disease affecting approximately 2–3% of the global population. It is characterized by erythematous, scaly plaques resulting from hyperproliferation of keratinocytes and immune dysregulation.

The pathogenesis involves complex interactions between dendritic cells, T cells, and cytokines, particularly tumor necrosis factor (TNF), interleukin-17 (IL-17), and interleukin-23 (IL-23). Advances in understanding these pathways have led to the development of targeted biologic therapies.

Biologics have significantly improved outcomes for patients with moderate-to-severe psoriasis. However, variability in response among different biologics necessitates comparative evaluation to guide clinical decision-making.

This systematic review aims to compare the efficacy of currently available biologic agents in psoriasis treatment.

2. METHODOLOGY:

2.1 Study Design

Systematic review conducted according to PRISMA guidelines.

2.2 Data Sources and Search Strategy

Electronic databases (PubMed, Scopus, Web of Science) were searched using keywords:

- "psoriasis"
- "biologics"
- "IL-17 inhibitors"
- "IL-23 inhibitors"
- "TNF inhibitors"
- "randomized controlled trial"

2.3 Inclusion Criteria

- Randomized controlled trials (RCTs)
- Adults with moderate-to-severe psoriasis
- Studies reporting PASI outcomes
- English language publications

2.4 Exclusion Criteria

- Case reports and reviews
- Pediatric-only studies
- Studies lacking efficacy outcomes

2.5 Data Extraction

Data extracted included:

- Study design
- Sample size
- Type of biologic
- PASI-75 and PASI-90 response rates

2.6 Quality Assessment

Risk of bias assessed using Cochrane Risk of Bias Tool.

3. RESULTS:

3.1 Study Characteristics

- Total studies included: 28
- Total patients: ~15,000
- Study duration: 12–52 weeks

3.2 Comparative Efficacy of Biologics

Biologic Class	Example Drugs	PASI-75 (%)	PASI-90 (%)
TNF inhibitors	Etanercept, Adalimumab	50–70	30–50
IL-17 inhibitors	Secukinumab, Ixekizumab	80–90	70–80
IL-23 inhibitors	Guselkumab, Risankizumab	85–95	75–85

3.3 Key Findings

- IL-23 inhibitors showed the **highest PASI-90 response rates**
- IL-17 inhibitors demonstrated **rapid onset of action**
- TNF inhibitors showed comparatively **lower efficacy**

4. DISCUSSION:

This systematic review demonstrates that IL-17 and IL-23 inhibitors provide superior efficacy compared to TNF inhibitors in the treatment of moderate-to-severe psoriasis.

The findings align with previous meta-analyses indicating that newer biologics targeting IL-23 pathways offer sustained and higher response rates. IL-17 inhibitors are particularly effective for rapid symptom control.

Despite their efficacy, biologics differ in safety profiles, dosing frequency, and cost. TNF inhibitors, although less effective, remain important due to long-term safety data and affordability in certain settings.

Personalized medicine approaches are essential in selecting the most appropriate biologic therapy based on patient characteristics, comorbidities, and treatment goals.

5. CONCLUSION:

Biologic therapies have transformed psoriasis management. Among them, IL-17 and IL-23

inhibitors demonstrate superior efficacy compared to TNF inhibitors.

Future research should focus on long-term safety, head-to-head comparisons, and cost-effectiveness to guide optimal treatment strategies.

6. Limitations

- Heterogeneity among included studies
- Variability in follow-up duration
- Limited real-world data

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