Biologics have transformed the management of moderate to severe psoriasis. There currently are 11 biologics approved by the US Food and Drug Administration (Table) for psoriasis treatment that have been affirmed by various clinical studies. This article provides dosing initiation, maintenance information, and updated clinical data using phase 3 studies (N=8) published between May 2020 and February 2021. Generic names of the 11 biologics were searched separately in the PubMed database within the specified date range. Subsequent results were reviewed by title and selected for phase 3 and 4 trials. Clinical data in this review focus on reducing patient disease burden by allocating a biologic best fit for each patient’s individual health profile.

**IL-17A Inhibitors Update**

Secukinumab is safe and efficacious for skin clearance in the presence of comorbidities and can be used for improving plaque psoriasis and palmoplantar pustular psoriasis. An extension of a phase 3 randomized controlled trial (RCT)—2PRECISE—evaluated the efficacy and safety of secukinumab dosing at 300 mg (n=79) and 150 mg (n=80) in adults with moderate to severe palmoplantar pustular psoriasis (palmoplantar psoriasis area and severity index [PPPASI] score ≥12 and dermatology life quality index [DLQI] ≥10) over 148 weeks.\(^1\)

**PRACTICE POINTS**

- Choosing a biologic best fit for each patient’s individual health profile can reduce psoriasis disease burden.
- Clinicians should educate psoriasis patients that biologics are safe for most comorbidities, and conditions such as obesity have been associated with poorer therapeutic response.
- It is important to discuss possible side effects of biologics with patients and reassure them that mild side effects are the most common during therapy.

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<tr>
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<td>150 mg every 12 wk</td>
<td>NA</td>
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</tr>
</tbody>
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Abbreviations: FDA, US Food and Drug Administration; TNF, tumor necrosis factor; NA, not applicable.

*As of July 2021.
patients were included from the 52-week 2PRECISE study per the investigator’s judgment of a meaningful clinical response (exact criteria not described). All treatment groups demonstrated a mean (SD) PPPASI of 22.7 (9.5) by the extension trial’s start. Results affirmed that clinical response waned after week 148 in all groups excluding placebo/secukinumab 150 mg, which maintained a mean (SD) PPPASI of 22.7 (9.5). The most frequent adverse events were nasopharyngitis, pustular psoriasis, headache, and pruritus.1

Comorbidities do not have a major impact on secukinumab’s efficacy. A post hoc analysis of 4 phase 3 RCTs—ERASURE, FIXTURE, FEATURE, and JUNCTURE—gathered data from adult patients (N=2401) to assess baseline comorbidities with efficacy and safety of secukinumab vs etanercept after 12 weeks of treatment.2 Sixty-one percent (n=1469) had at least 1 comorbidity, most frequently obesity, hypertension, psoriatic arthritis, hyperlipidemia, or diabetes mellitus. All patient groups had a greater likelihood of a psoriasis area and severity index (PASI) response with any dose of secukinumab vs patients with comorbidities who were taking etanercept or placebo (P<.05) at week 12. All groups had a greater likelihood of achieving investigator global assessment scores of 0/1 (clear/almost clear) vs patients with comorbidities taking etanercept or placebo (P<.05). Baseline comorbidities did not significantly affect treatment response, except obesity, which was associated with decreased probability of achieving all PASI and investigator global assessment (P<.01) responses. Secukinumab-treated patients with and without comorbidities had equivalent likelihood of treatment-emergent adverse events (TEAEs).2

Brodalumab is an effective biologic that has shown long-term safety with continuous administration. Continuous brodalumab and brodalumab after placebo demonstrated impactful skin clearance after 120 weeks in AMAGINE-1, a phase 3 RCT involving adults (N=442) demonstrated impactful skin clearance after 120 weeks in AMAGINE-1, a phase 3 RCT involving adults (N=442) and safety for 5 years of continuous tildrakizumab 100 mg and 200 mg in adults with comorbid MetS.5 Although no difference in efficacy was concluded, greater body mass index of the MetS population was shown to be associated with lower biologic efficacy compared to the general population. The proportion of patients who achieved PASI 75 at week 52 was comparable in patients with MetS and patients without MetS (tildrakizumab 100 mg, 85% and 86% vs 86% and 94% for reSURFACE 1/2, respectively; tildrakizumab 200 mg, 76% and 87% vs 76% and 97% for reSURFACE 1/2, respectively).5

Tildrakizumab also demonstrated efficacy and safety for up to 5 years in 2 other phase 3 RCTs with no dose-related differences in frequency of injections and malignancies. Tildrakizumab 100 mg is the recommended dose. The 200-mg dose can be utilized in patients with a high burden of disease and disability. reSURFACE 1 and reSURFACE 2 involved adults with chronic moderate to severe plaque psoriasis randomized to tildrakizumab 100 mg, 200 mg, or placebo with the option of long-term extension to week 244 if patients reached 50% or greater improvement value, as intermittent treatment administration can occur because of personal or financial reasons.3

Ixekizumab is associated with more rapid skin clearance, better resolution of nail psoriasis, and superior improvement in quality-of-life measures when compared with guselkumab. The phase 3 study IXORA-R compared skin and nail clearance as well as patient-reported outcomes over 24 weeks with ixekizumab 80 mg (n=520) vs guselkumab 100 mg (n=507) in adults with moderate to severe plaque psoriasis.4 Ixekizumab (50%) was shown to be no worse than guselkumab (52%; difference, –2.3%) using a noninferiority test (noninferiority margin of –11.4%). The treatments exhibited similar efficacy, with no significant difference in proportion of patients reaching PASI 100 (P=.41). Ixekizumab patients tended to have skin clearance sooner than guselkumab patients, reaching PASI 50/75/90 and PASI 100 in a median time that was 2 weeks and 7.5 weeks earlier, respectively. More ixekizumab patients (52%) achieved clear nails vs guselkumab patients (31%; P=.007). Ixekizumab patients reported greater satisfaction with their skin disease affecting quality of life (DLQI), with more DLQI 0/1 (no effect at all on patient’s life) scores and being itch free (P<.05). Ixekizumab was associated with significantly more days of complete skin clearance (PASI 100) vs guselkumab (55.6 days vs 42.2 days; P<.001). Although an upper respiratory tract infection was the most common TEAE, the proportion of TEAEs was similar between treatments.5

IL-23 Inhibitors Update

Tildrakizumab has similar long-term skin clearance efficacy and safety in patients with psoriasis with and without comorbid metabolic syndrome (MetS). A post hoc analysis of 2 phase 2 RCTs (reSURFACE 1/2) involving adults (N=338 and N=307) with moderate to severe plaque psoriasis assessed long-term efficacy (3 years), drug survival, and safety for 5 years of continuous tildrakizumab 100 mg and 200 mg in adults with comorbid MetS. Although no difference in efficacy was concluded, greater body mass index of the MetS population was shown to be associated with lower biologic efficacy compared to the general population. The proportion of patients who achieved PASI 75 at week 52 was comparable in patients with MetS and patients without MetS (tildrakizumab 100 mg, 85% and 86% vs 86% and 94% for reSURFACE 1/2, respectively; tildrakizumab 200 mg, 76% and 87% vs 76% and 87% for reSURFACE 1/2, respectively).5
from baseline PASI score. Patients in reSURFACE 2 also were randomized to etanercept 50 mg with partial responders and nonresponders at week 28 switching to tildrakizumab 200 mg until week 244. Extension results showed PASI 75 achievement in 88.7% (95% CI, 84.6%-92.1%) of patients taking tildrakizumab 100 mg (n = 235), 92.5% (95% CI, 88.1%-95.7%) of patients taking tildrakizumab 200 mg (n = 176), and 81.3% (95% CI, 72.6%-88.2%) of patients taking etanercept/partial nonresponders (n = 85). The most common TEAE was nasopharyngitis (10.5/100 patient-years for tildrakizumab 100 mg and 10.7/100 patient-years for tildrakizumab 200 mg). The frequency of severe infections (eg, diverticulitis, pneumonia, cellulitis, appendicitis) was 1.2 per 100 patient-years for tildrakizumab 100 mg and 1.3 per 100 patient-years for tildrakizumab 200 mg.

Risankizumab and tildrakizumab require the lowest number of injections, thereby providing sustainable skin clearance with a convenient injection dosing schedule for patients. Risankizumab efficacy (8.2% with inferiority margin of 12%) was noninferior to secukinumab when assessing the proportion of PASI 90 responders after 2 doses of risankizumab vs 7 doses of secukinumab. IMMerge, an international phase 3 RCT, involved adults (N = 327) with moderate to severe plaque psoriasis to compare the safety and efficacy of risankizumab 150 mg (n = 164) vs secukinumab 300 mg (n = 163) up to 52 weeks. A greater proportion of the risankizumab arm (86.6%) achieved PASI 90 in 52 weeks compared to the secukinumab arm (57.1%). Superior skin clearance (PASI 90) at week 52 was achieved after 5 doses with risankizumab vs 16 doses of secukinumab. Risankizumab TEAEs were nasopharyngitis, upper respiratory tract infection, headache, arthralgia, diarrhea, and bronchitis.

Continuous risankizumab treatment shows substantially stronger skin clearing performance compared with intermittent treatment following drug withdrawal, demonstrating that treatment gaps minimize therapeutic response. IMMhance, an international phase 3 RCT involving adults (N = 507) with moderate to severe plaque psoriasis, evaluated the safety and efficacy with risankizumab 150 mg after 52 weeks and 104 weeks. Part A randomized patients to risankizumab 150 mg (n = 407) or placebo (n = 100). Part B rerandomized patients at week 28 to continue risankizumab 150 mg or placebo (designated as withdrawal of treatment; later re-treated with risankizumab 150 mg if patients had sPGA ≥3). At week 52, significantly more patients reached sPGA score of 0/1 with risankizumab/risankizumab (n = 90 [81.1%]) vs risankizumab/placebo (n = 16 [7.1%]; P < .001). Risankizumab exhibited longevity following withdrawal, as median time to loss of response and relapse was 42 weeks (sPGA ≥3). The extent of TEAEs was similar between risankizumab and placebo and included nasopharyngitis, upper respiratory tract infection, headache, and back pain.

Final Thoughts

Biologics for psoriasis help produce intended results for skin disease clearance and are tools for precision medicine. Recent data demonstrate safe, durable, and continuous efficacy with biologics, which offer patients a better chance of treatment success. This guide may serve as a quick reference for biologic selection with special consideration of individual disease characteristics and comorbidities.

REFERENCES