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Efficacy and Safety of *Ixekizumab* in Patients with Moderate-to-Severe Plaque Psoriasis: A Systematic Review and Meta-Analysis

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ABSTRACT
Plaque psoriasis is a chronic inflammatory skin disease affecting approximately 1% of adults worldwide. However, studies of *Ixekizumab* have shown mixed results. To evaluate the effectiveness and safety of *Ixekizumab* in patients with moderate to severe plaque psoriasis. This systematic review followed the PRISMA 2020 guidelines and was conducted on PubMed, ScienceDirect, and Google Scholar. Primary outcomes included PASI 75, PASI 90, PASI 100, and treatment-related adverse events. Secondary outcomes included sPGA (0/1), sPGA (0), DLQI (0/1), DLQI (0), NAPSI, and NRS itch score (≤4). Proportions were used to convey the incidence of primary and secondary outcomes. Risk of bias was assessed using the RoB2 tool. Statistical analysis was performed using R version 4.4.2. This meta-analysis included 9 RCTs, with a low risk of bias in all studies. Analysis of PASI outcomes 75% shows the proportion of events of 81.1% (95% CI: 72.78%-87.32%; I2 = 85.5%). PASI 90% shows the proportion of events of 65.72% (95% CI: 49.87%- 78.70%; I2 = 95.4%) and PASI 100% of 38.98% (95% CI: 31.81%-46.65%; I^2 = 93.3%). Side effects caused by the intervention were 66.07% (95% CI: 58.23%–73.12%; I^2 = 88.9%). sPGA score ≤1, DLQI ≤1, NAPSI, NRS with a proportion of 71.15% (95% CI: 61.12%–79.47%), 59.68% (95% CI: 39.84%–76.79%), 28.44% (95% CI: 15.80%–45.71%), 47.91% (95% CI: 33.77%–62.40%). *Ixekizumab* demonstrated high efficacy in the treatment of moderate to severe plaque psoriasis, with adverse events occurring in more than half of participants consistently reported across studies.
Keywords: efficacy; *Ixekizumab*; safety; psoriasis; plaque.

INTRODUCTION

Plaque psoriasis is a chronic inflammatory skin disease reported to affect approximately 1% of adults worldwide (Egeberg et al., 2022). Plaque psoriasis is estimated to first occur before the age of 20 years in 35–50% of adults with plaque psoriasis. (Paller et al., 2020)Psoriasis is associated with various comorbidities, including psoriatic arthritis, diabetes, cardiovascular disease, and depression. In addition to physical discomfort, the various signs and symptoms of psoriasis have a significant impact on social relationships, mental health, and work-related activities, leading to poor quality of life (QoL) (Leonardi et al., 2020).

Psoriasis severity and the efficacy of available treatments are evaluated using the Psoriasis Area and Severity Index (PASI) (Eisen et al., 2025). A reduction of ≥75% from baseline (PASI 75) in PASI scores after treatment has long been a therapeutic goal. However, with the advent of biologic therapies, a PASI of 90 or even complete skin clearance (PASI 100) after six months of treatment has become a very realistic target for patients with moderate to severe psoriasis (Abrouk et al., 2017; Mahil et al., 2020). Despite the difference in skin clearance, a previous study suggested that the QoL of patients achieving a PASI of 75 versus a PASI of 90 may not differ significantly from a clinical perspective (Carretero et al., 2018; Eisen et al., 2025). It is generally agreed that an absolute PASI score of ≤2 or ≤3 is a better therapeutic target and also correlates better with *the Dermatology Life Quality Index* (DLQI) score than a relative PASI (Abrouk et al., 2017; Armstrong et al., 2023; Hartmane et al., 2021).

Several studies have shown that psoriasis patients require rapidly effective treatment that can address all skin lesions. Patients who achieve a rapid clinical response have been shown to experience greater cumulative clinical benefit and improved patient outcomes, including quality of life, compared with patients who achieve a slower response (Li et al.,

2022). *Ixekizumab* is a humanized immunoglobulin (Ig) G4 monoclonal antibody designed to selectively inhibit IL-17A. *Ixekizumab* binds with high affinity and specificity (<3 μM) to IL-17A, a proinflammatory cytokine, and does not bind to human IL-17B, IL-17C, IL-17D, IL-17E, or IL-17F. Neutralizing IL-17A with *Ixekizumab* can reduce excessive keratinocyte proliferation and activation, resulting in skin normalization in patients with plaque psoriasis (Liu et al., 2016; Ying et al., 2023).

The efficacy of *Ixekizumab* for treating moderate to severe plaque psoriasis and improving quality of life has been demonstrated in three global, randomized, phase 3 clinical trials, as well as in a phase 3 study conducted in China (Li et al., 2022; Liu et al., 2016; Ying et al., 2023). These studies also noted rapid onset and superior efficacy compared with etanercept and placebo, as well as a consistent and favorable safety profile in patients with moderate to severe psoriasis (Li et al., 2022; Liu et al., 2016; Ying et al., 2023). Another study in psoriasis patients from the US and Canada enrolled in the Corona Psoriasis Registry showed a lower likelihood of discontinuing *Ixekizumab* compared with TNF inhibitors (64% lower risk) and other IL-17 inhibitors (31% lower risk) (Lockshin et al., 2021). Data from the same registry showed comparable rates of adverse events (AEs) during *Ixekizumab* treatment compared with clinical trials (Blauvelt et al., 2020).

The novelty of this research lies in four original contributions. First, this study provides the first comprehensive meta-analysis of all nine available RCTs of *Ixekizumab* in plaque psoriasis (n=4,185 participants), offering the most precise pooled estimates for PASI 75, 90, and 100 responses, sPGA outcomes, DLQI improvements, NAPSI clearance, NRS itch resolution, and treatment-related adverse events in a single analysis. Second, this meta-analysis includes recently published trials (2020-2025) not captured in previous syntheses, ensuring currency and completeness. Third, the study applies rigorous bias assessment using the RoB2 tool and quantitatively evaluates heterogeneity, providing clinicians with guidance on the certainty of evidence. Fourth, the analysis includes outcomes particularly relevant to patient-centered care DLQI (quality of life), NRS itch (symptom relief), and NAPSI (nail psoriasis) which are often underemphasized in efficacy-focused meta-analyses. This study extends previous systematic reviews by incorporating all available RCT evidence with up-to-date statistical methods.

To date, studies examining the efficacy and safety of *Ixekizumab* in patients with plaque psoriasis are limited and have shown varying results. Therefore, the aim of this meta-analysis was to evaluate the efficacy and safety of *Ixekizumab* in patients with moderate to severe plaque psoriasis.

METHOD

Search Strategy

A computerized systematic literature search of relevant studies was conducted in ten databases, including PubMed, ScienceDirect, and Google Scholar up to November 11, 2025. Search terms were formulated and combined using the Boolean operators “AND” and “OR”: (“Psoriasis”) AND (“*Ixekizumab*”) AND ((“Safety”) OR (“Efficacy”)) AND (“RCT”). There were no restrictions regarding publication year or language in the entire search strategy.

Study Selection

Database screening was performed independently in three databases. After removal of duplicates, the remaining articles were reviewed based on title and abstract. Following independent review, the researchers cross-checked the eligibility of each study against pre-established criteria. Any disagreements were resolved through in-depth discussion. Studies meeting the criteria were then extracted, and the data were compiled in a Microsoft Excel

spreadsheet. Extracted data included outcomes such as PASI 75, PASI 90, PASI 100, sPGA (0/1), sPGA (0), DLQI (0/1), DLQI (0), NAPSI, NRS itch score (≤4), and treatment-related adverse events, all reported as post-treatment values. Additional information, including the number of participants, registry number, length of follow-up, and intervention details, was also collected.

Eligibility Criteria

Eligibility criteria were developed using the PICO framework for systematic reviews. Studies were included if they met the following criteria: (1) the study population consisted of patients with moderate to severe psoriasis; (2) *Ixekizumab* was administered as the primary intervention; (3) the study design used randomized controlled trials (RCTs). Studies were excluded if: (1) the title or abstract was irrelevant; (2) the full text was inaccessible; (3) the study was a secondary analysis, review article, case report, case series, or conference abstract; (4) the treatment regimen was significantly modified from the standard protocol.

Bias Assessment

Risk of bias assessment in randomized clinical trials was performed using the Revised Tool for Risk of Bias in Randomized Trials (RoB 2.0). RoB 2.0 is a revised tool consisting of five domains of bias specifically designed to assess the risk of bias in randomized clinical trials arising from: (1) the randomization process; (2) deviations from the planned intervention; (3) missing outcome data; (4) outcome measurement; and (5) selection of reported outcomes. Each study was classified as having a low, "some concerns," or high risk of bias based on an algorithm that combined several specific marker questions per domain. The ratings across all domains were then synthesized into a single overall risk of bias assessment for each study. A study was considered to have a low overall risk of bias if all domains demonstrated a low risk. If at least one domain was assessed as having "some concerns," the study was classified as having "some concerns." A study was considered to have a high risk of bias if at least one domain demonstrated a high risk or if there were "some concerns" across multiple domains that significantly reduced confidence in the study results. The results of this assessment were visually represented as a traffic light plot. Publication bias was also assessed using visual inspection of a funnel plot. Funnel plot analysis was only performed if ≤10 studies were included in the meta-analysis, as recommended by the Cochrane Handbook. All funnel plots are reported in a separate section of the results.

Quantitative Analysis

Meta-analyses were performed using R software with the "meta" package. All outcomes were analyzed as single-arm proportion meta-analyses with 95% confidence intervals. Proportions were calculated using both common effects and random effects models. Interpretation of the overall effect was adjusted according to the model used; if heterogeneity was present ($I^2 \leq 50\%$), the estimated overall effect from the random effects model was considered more appropriate, and vice versa. A p-value less than 0.05 was considered statistically significant in all analyses.

RESULT AND DISCUSSION

Characteristics of Included Studies

This meta-analysis included nine clinical trials, with a total sample size of 4185. All studies were registered in an official clinical trial registry and used a controlled design with

uniform outcome measures. The primary clinical outcomes analyzed included various levels of Psoriasis Area and Severity Index response (PASI 75, PASI 90, and PASI 100), Static Physician Global Assessment (sPGA 0/1 and sPGA 0), quality of life index (DLQI), pruritus score based on the Numerical Rating Scale, and nail-specific outcomes using the Nail Psoriasis Severity Index. Several studies also assessed safety by recording the occurrence of adverse events during the follow-up period.

The dosage regimen was relatively consistent across studies, with an initial dose of 160 mg followed by a maintenance dose of 80 mg subcutaneously. The dosing interval varied between every 2 weeks (Q2W) or every 4 weeks (Q4W), depending on the design of each clinical trial. One study by Leonardi et al. specifically evaluated a wider dose range (10–150 mg) for the purpose of observing dose-response. Study follow-up durations ranged from 12 to 52 weeks.

Table 1. Baseline characteristics of included studies

Studies	*Trial Registry*	Amount Sample	Study output	Dose	*Follow-up* Time
Khattri et al., 2018 (*Early Onset of Clinical Improvement with with Moderate-to-Severe Open-Label Study of Patients Ixekizumab in a Randomized, Plaque Psoriasis*, 2018)	NCT02387801	12	PASI 75/90/100, sPGA [0.1], sPGA [0], NRS [≤4], Side effects	160 mg initial dose, 80 mg SC Q2W or Q4W	48 Weeks
Wasel et al., 2020 (Wasel et al., 2020)	NCT02561806	136	NAPSI [0], PASI 100	160 mg initial dose, 80 mg SC Q2W (for 12 weeks) followed by Q4W	52 Weeks
Langley et al. 2018 (Langley et al., 2018)	NCT02513550	921	PASI 75/90/100, sPGA [0.1], sPGA [0], NRS [≤4], DLQI [0.1], NAPSI, Side effects	160 mg initial dose, 80 mg SC Q2W or Q4W	52 Weeks
Blauvelt et al., 2021 (Blauvelt et al., 2021)	NCT03573323	520	PASI 75/90/100, sPGA [0], PGA-F [0.1], PGA-F [0], DLQI [0.1], NRS [0]	160 mg initial dose, 80 mg SC Q4W	24 Weeks
Reich et al., 2020 (Reich et al., 2020)	NCT02634801	54	PASI 75/90/100, sPGA [0.1], DLQI [0.1], Side effects	160 mg initial dose, 80 mg SC Q2W followed by Q4W	24 Weeks

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Studies	*Trial Registry*	Amount Sample	Study output	Dose	*Follow-up* Time
Honma et al., 2020 (Honma et al., 2020)	NCT01624233	91	PASI 90/100, DLQI [0.1], NRS itch score [0]	160 mg initial dose, 80 mg SC Q2W followed by Q4W	12 Weeks
Papp et al., 2018 (Papp et al., 2018)	NCT01474512 NCT01597245 NCT01646177	2334	PASI 75/90/100, sPGA [0.1], sPGA [0], NAPSI [0], Side effects	160 mg initial dose, 80 mg SC Q2W or Q4W	12 Weeks
Leonardi et al., 2012 (Leonardi et al., 2012)	NCT01107457	115	PASI 75/90/100, sPGA [0.1], sPGA [0], Side effects	10/25/75/150 mg SC Q4W	12 Weeks
Morita et al., 2022 (Morita et al., 2022)	NCT03942042	12	DLQI [0.1], DLQI [0], NRS itch score ≤4, Side effects	160 mg initial dose, 80 mg SC Q2W	20 Weeks

Literature Search and Selection

A literature search of three major databases yielded a total of 1,499 records: 48 from PubMed, 241 from ScienceDirect, and 1,210 from Google Scholar. After deduplication, 289 records were removed, leaving 1,210 unique records for the initial screening stage. In the title and abstract assessment, 1,197 records were excluded due to their irrelevance or inconsistency with the required research design.

A total of 13 reports were then identified for full-text searching. One report was inaccessible, resulting in 12 reports being retrieved and further evaluated for eligibility. From the full-text evaluation phase, three reports were excluded: two studies did not report outcomes, focusing more on pharmacokinetic outcomes, and one study modified the *Ixekizumab* intervention by providing a no-intervention period.

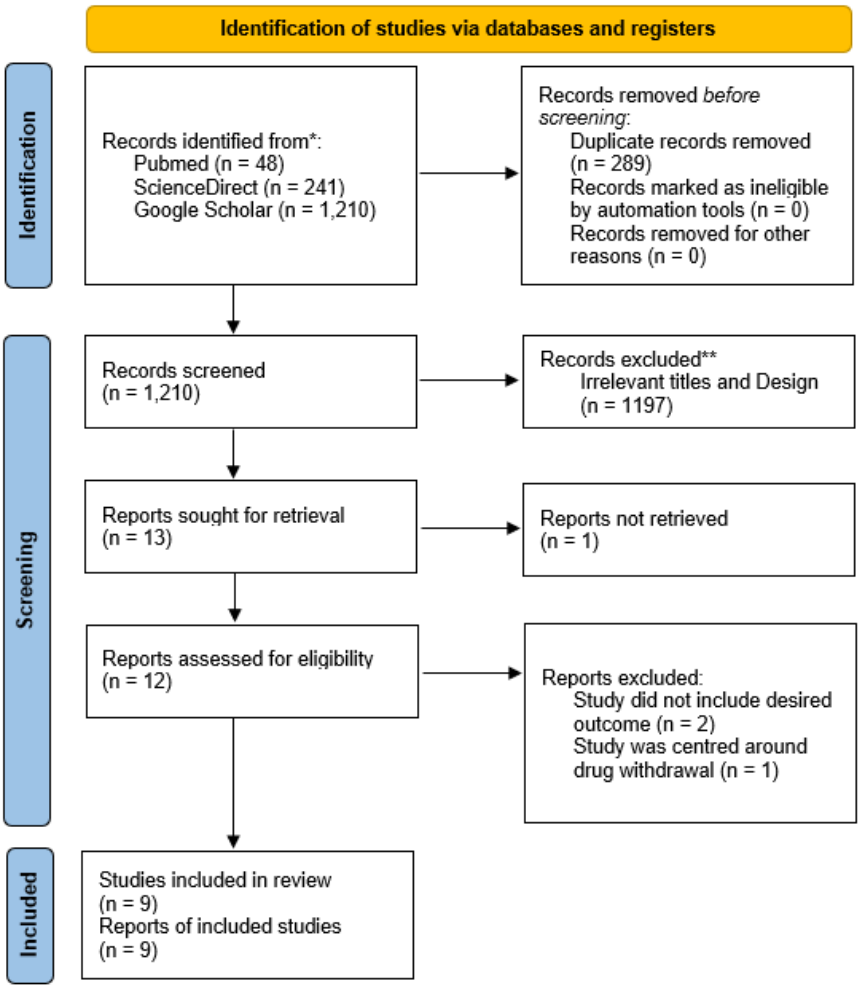

Figure 1. The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) flowchart.

Risk of Bias

Risk of bias assessment of the nine included clinical trials showed that all studies were of good methodological quality, with a rating of "Low risk" in all RoB 2 domains. Each study demonstrated an adequate randomization process, with no indication of initial imbalance or weaknesses in allocation that could have affected the effect estimates.

No intervention-related deviations that could have introduced bias were found, and outcome data handling was deemed adequate, with a high follow-up completion rate and appropriate analytical methods used to minimize missing outcome bias. Outcome measurements were conducted using standard instruments for psoriasis management, so the risk of measurement bias was low across all studies.

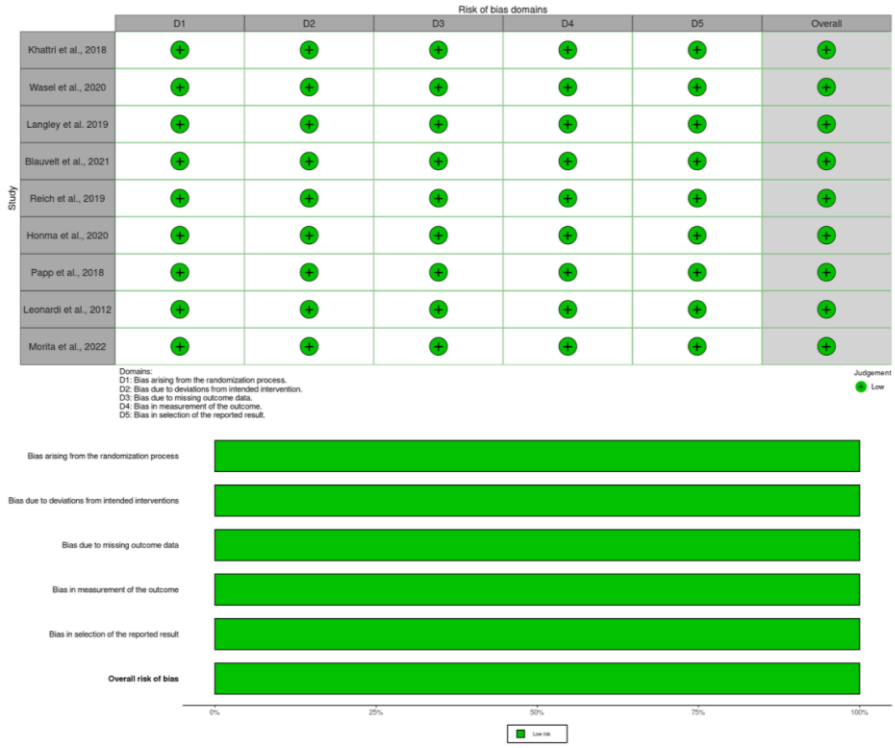

Figure 2. Traffic-light plot and summary plot based on the Cochrane RoB 2.0 tool domain

Psoriasis Area and Severity Index Improvement 75%, 90%, and 100%

Analysis of the Psoriasis Area and Severity Index (PASI) 75% outcome included 6 studies and 12 intervention groups with a total of 3,956 participants showing a high response proportion, namely 83.5% [95% CI: 82.28%-84.65%] in the common-effects model and 81.1% [95% CI: 72.78%-87.32%] in the random-effects model . In both models, it can be seen that the majority of patients at the end of the clinical trial period experienced at least a 75% decrease in their baseline PASI score. The I^2 value of 85.5% indicates substantial heterogeneity, therefore the results of the random-effects model are more inclined to be selected based on heterogeneity. Other data regarding the proportion of PASI 75 events can be found in Figure 3A.

For the PASI 90 outcome, analysis of 7 studies and 13 intervention groups encompassing 4,047 participants showed that the proportion of participants achieving a 90% reduction in PASI scores was 69.06% [95% CI: 67.53%-70.55%] in the common-effects model and 65.72% [95% CI: 49.87%-78.70%] in the random-effects model . This 90% reduction in baseline PASI scores was also found in the majority of patients at the end of the study period, although less frequently than the 75% reduction in baseline PASI scores. Heterogeneity between studies was very high (I^2 = 95.4), therefore the results of the random-effects model were more inclined to be selected based on heterogeneity. Other data regarding the proportion of PASI 90 events can be found in Figure 3B.

Meanwhile, in the PASI 100 outcome, 8 studies and 14 intervention groups with 4,185 participants resulted in a proportion of participants with a 100% decrease in PASI of 39.14% [95% CI: 37.63%-40.67%] in the common-effect model and 38.98% [95% CI: 31.81%-46.65%] in the random-effect model , these results indicate a high gap in incidence between a

100% decrease in PASI score compared to a 75% or 90% decrease in PASI score at the end of the clinical trial. Heterogeneity between studies was very high (I^2 = 93.3%), therefore the results of the random-effect model tended to be chosen based on heterogeneity. Other data regarding the proportion of PASI 100 events can be found in Figure 3C.

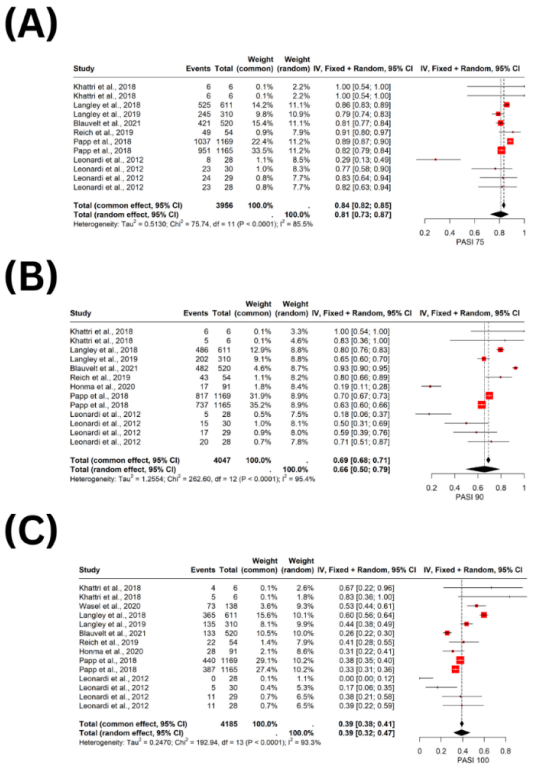

Figure 3. Forest plot Forest plot of PASI 75 (A), 90 (B), and 100 (C) post-*Ixekizumab* intervention

Static Physician's Global Assessment Score

The analysis of the outcome of sPGA score ≤1 included 6 studies and 12 intervention groups with a total of 3,956 participants, indicating a high proportion of responses. The common-effects model showed a proportion of 72.98% [95% CI: 71.52%–74.39%], while the random-effects model provided an estimate of 71.15% [95% CI: 61.12%–79.47%]. The I^2 value was 94.9%, indicating very high heterogeneity between studies. The results of the random-effects model were preferred due to the high heterogeneity. Additional data regarding the proportion of sPGA score ≤1 can be found in Figure 4A.

For the outcome of sPGA 0, analysis of 4 studies and 10 intervention groups encompassing 3,382 participants resulted in a proportion of participants achieving an sPGA score of 0 of 41.87% [95% CI: 40.18%–43.58%] in the common-effects model and 41.05% [95% CI: 30.05%–53.02%] in the random-effects model . Heterogeneity between studies was high based on the I^2 value of 93.2. The results of the random-effects model were preferred due to the high heterogeneity between studies. Other data regarding the proportion of sPGA score 0 events can be found in Figure 4B.

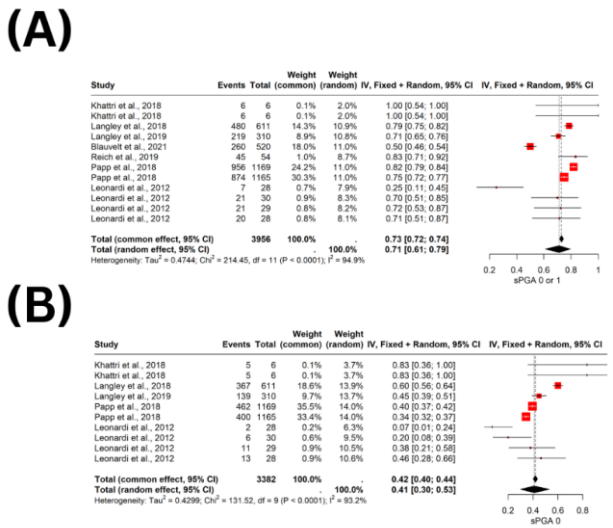

Figure 4. Forest plot sPGA score with a score ≤1 (A) and with a score of 0 after *Ixekizumab* intervention

Dermatology Life Quality Index score

The analysis of DLQI ≤1 outcomes included six studies with a total of 1,598 participants, showing a good QoL response rate of 71.67% [95% CI: 69.32%–73.92%] in the common-effects model and 59.68% [95% CI: 39.84%–76.79%] in the random-effects model. Both models demonstrated that the majority of patients experienced significant QoL improvement at the end of the trial. The I² value of 94.8% indicated significant heterogeneity between studies, and therefore the random-effects model was preferred based on the magnitude of heterogeneity. Further data on the proportion of DLQI ≤1 events can be found in Figure 5.

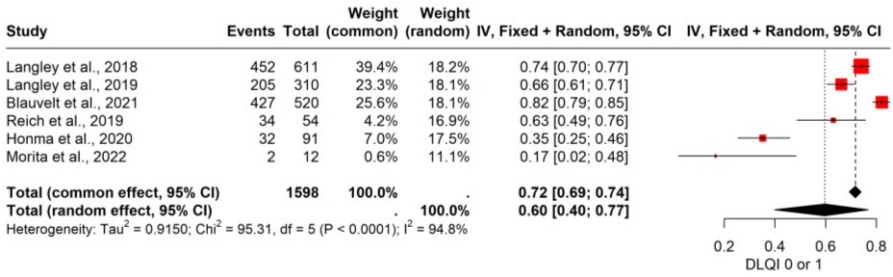

Figure 5. Forest plot DLQI score ≤1 after *Ixekizumab* intervention

Nail Psoriasis Severity Index

The analysis of the NAPSI 0 outcome included 3 studies and 5 intervention groups with a total of 3,393 participants, showing a proportion of 22.79% [95% CI: 21.34%–24.31%] in the common-effects model and 28.44% [95% CI: 15.80%–45.71%] in the random-effects model. In both models, it can be seen that a small proportion of patients achieved complete resolution of nail psoriasis at the end of the clinical trial period. The I² value of 98.0% indicates very high heterogeneity between studies, so the results of the random-effects model

are more likely to be selected based on the large inter-study variability. Additional data regarding the proportion of NAPSI 0 events can be found in Figure 6A.

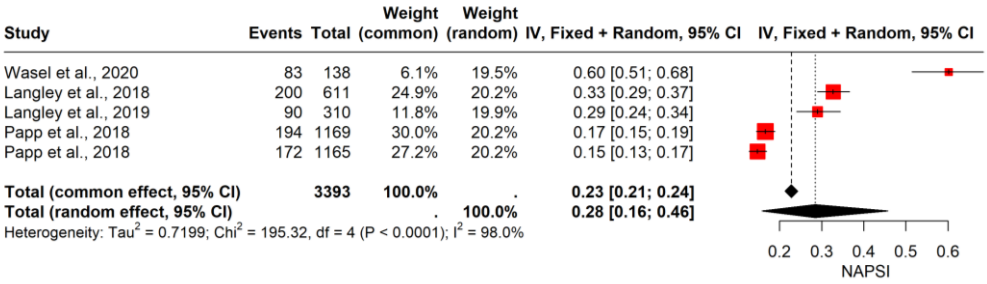

Figure 6. Forest plot NAPSI score after *Ixekizumab* intervention

Itch Numeric Rating Scale

Analysis of the NRS pruritus outcome with a score of 0 included 5 studies and 7 intervention groups with a total of 1,556 participants, showing a response proportion of 52.93% [95% CI: 50.36%–55.49%] in the common-effects model and 47.91% [95% CI: 33.77%–62.40%] in the random-effects model . In both models, it can be seen that almost half of the patients experienced complete resolution of itching symptoms at the end of the clinical trial period. The I² value of 93.7% indicates very high heterogeneity between studies, so the results of the random-effects model are more likely to be selected based on the large variability of the data. Additional data regarding the proportion of NRS scores of 0 can be found in Figure 7.

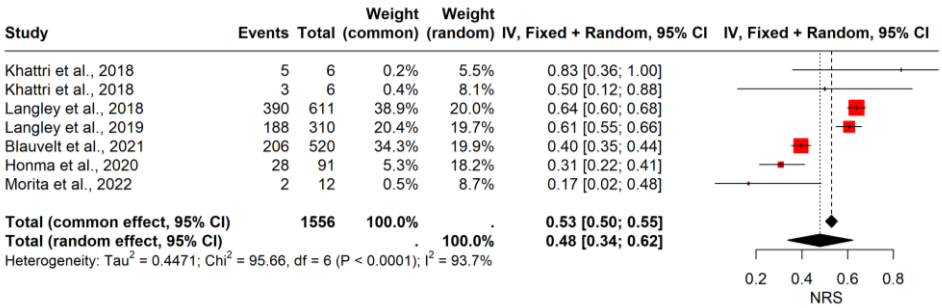

Figure 7. Forest plot NRS score after *Ixekizumab* intervention

Side Effects Caused by Intervention

Analysis of intervention-related adverse events across 7 studies and 13 intervention groups with a total of 3,968 participants showed a proportion of therapy-related adverse events of 62.85% [95% CI: 61.31%–64.37%] in the common-effects model and 66.07% [95% CI: 58.23%–73.12%] in the random-effects model. Both models showed that more than 50% of patients experienced at least one therapy-related adverse event at the end of the clinical trial period. The I² value of 88.9% indicates high heterogeneity between studies, so the results of the random-effects model are more likely to be selected based on the high level of variability between studies. Other data regarding the proportion of TAE events can be found in Figure 8.

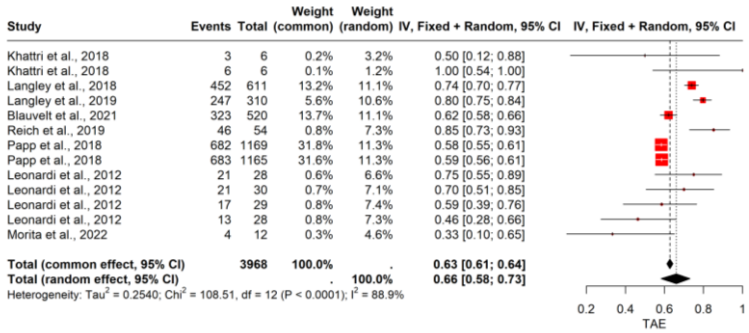

Figure 8. Forest plot proportion of adverse events caused by *Ixekizumab* intervention

Funnel Plot

Evaluation of the funnel plot distributions for various outcomes showed that most efficacy and safety parameters did not exhibit significant asymmetry. For the outcomes PASI 75, PASI 90, PASI 100, sPGA ≤1, sPGA 0, DLQI 0/1, NRS 0, and TAE incidence, the funnel plots showed relatively symmetric distributions, thus there was no strong indication that the meta-analysis results were influenced by reporting distortions or publication selection.

The only outcome showing a tendency toward asymmetry was NAPSI 0, where the distribution pattern between studies appeared slightly skewed, but given the relatively small number of studies, it should be emphasized that this finding is not yet significant. Peter's test could not be performed because it did not meet the minimum criterion of 10 studies. All funnel plots can be seen in Figure 9.

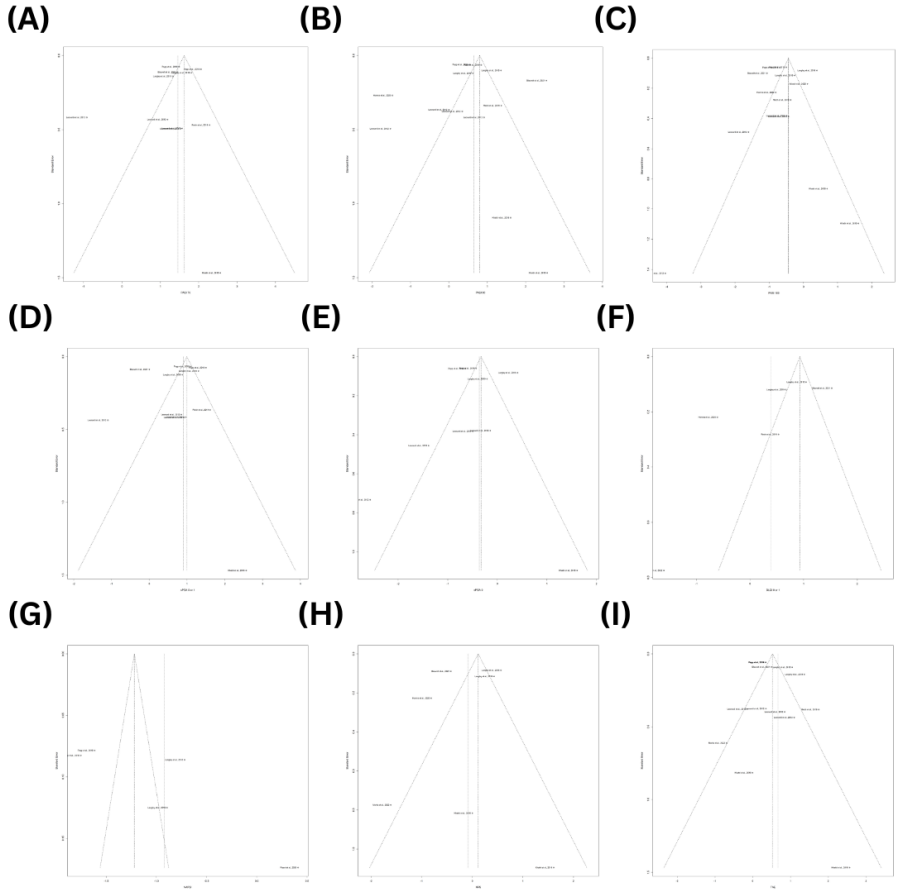

Figure 9. Funnel plot of PASI outcomes 75 (A), 90 (B), 100 (C), sPGA ≤1 (D), sPGA 0 (E), DLQI ≤1 (F), NAPSI (G), NRS itch scale (H), and side effects due to intervention (I)

Ixekizumab is a monoclonal antibody with high affinity and specificity against anti-interleukin (IL)-17A, a key pro-inflammatory cytokine in the pathogenesis of psoriasis. Global phase 3 studies have demonstrated the efficacy and safety of *Ixekizumab* in the treatment of moderate to severe plaque psoriasis for up to 5 years12-14 and in the treatment of PsA for up to 3 years.24,25 Consistent with previous studies, the majority of patients treated with *Ixekizumab* in both treatment periods maintained or achieved near-complete skin clearance (PASI 90; 70% [79% when patients with missing data due to the COVID-19 pandemic were excluded]) or complete clearance (PASI 100; 53% [60% when patients with missing data due to the COVID-19 pandemic were excluded]) of plaque psoriasis by week 60. This is similar to the findings of UNCOVER-3, where PASI 90 and PASI 100 response rates in patients treated with *Ixekizumab* at week 60 were ≥71% and ≥52%, respectively (Gorelick et al., 2019). Sustained efficacy is necessary for the clinical implementation of effective psoriasis treatment. Results from a survey conducted in the United States showed that a rapid treatment response, sustained skin clearance (for 2–3 years), and overall symptom relief were rated as very important by >90% of psoriasis patients (Gordon et al., 2016).

Based on previous studies, *Ixekizumab* demonstrated high efficacy in Chinese patients with moderate to severe psoriasis. Specifically, at week 12, >85% of patients receiving *Ixekizumab* achieved clear/near-clear skin (sPGA [0.1]), 94% achieved a clinically meaningful response (PASI 75), and 82% achieved a high-grade response (PASI 90). These

findings are similar to those observed for the predominantly white patient population receiving IXE Q2W in the global studies UNCOVER-1, UNCOVER-2, and UNCOVER-3, where sPGA (0.1) response rates were 82%, 83%, and 81%, respectively; PASI 75 response rates were 89%, 90%, and 87%, respectively; and PASI 90 response rates were 71%, 71%, and 68%, respectively. Additionally, consistent with the disease severity findings, the study results showed that the *Ixekizumab* regimen was associated with significant improvements in nail psoriasis (NAPSI) and QoL (Itch NRS and DLQI) at week 12 compared with placebo (Li et al., 2022). Based on the Chinese study, *Ixekizumab* was highly effective with a mean change from baseline in DLQI of 9.76 (SD 7.161) with 59.9% of patients achieving a DLQI of 0/1. 12 These efficacy findings are also consistent with the phase 3 trial in China and the global phase 3 trial (Langley et al., 2018).

Analysis of adverse events in this meta-analysis showed a treatment-related adverse event rate of 62.85% in the common-effects model and 66.07% in the random-effects model. Other clinical studies have shown that *Ixekizumab* can increase low-density lipoprotein levels and reduce high-sensitivity C-reactive protein levels without exacerbating aortic inflammation or affecting glucose metabolism. Furthermore, a pooled analysis of safety data from seven studies of *Ixekizumab* in psoriasis did not show an increased risk of adverse cardiovascular events. However, a pooled analysis of 4,209 patients with psoriasis receiving *Ixekizumab* across seven clinical studies reported a <1% incidence of Crohn's disease and IBD. Finally, IL-17 inhibitors can be initiated in patients with chronic or resolved hepatitis under close monitoring of liver function tests and viral titers, and IL-17 inhibitors are also safe in patients with latent tuberculosis infection (Egeberg et al., 2018; Strober et al., 2017).

Based on previous studies, the overall incidence of adverse events after 1 year of *Ixekizumab* treatment was 25.3%, lower than the findings reported in the UNCOVER-J clinical trial, in which 85.9% of patients with psoriasis vulgaris reported at least one adverse event. However, the incidence of adverse events in the current study (2.9%) is comparable to that reported in the UNCOVER-J trial (3.8%) for patients with psoriasis vulgaris. Although a significant number of fungal infections, including oral candidiasis, have been reported in association with *Ixekizumab* treatment, the overall incidence remains low, and all are considered non-serious. Screening for certain infections (e.g., fungal infections, tuberculosis) is recommended before *Ixekizumab* treatment (Saeki et al., 2017).

This meta-analysis has several advantages: it only included randomized controlled trials with a low risk of bias across all variables, thus strengthening the internal validity of the findings. It also used a variety of important clinical outcomes (PASI, sPGA, DLQI, NAPSI, and NRS) to provide a comprehensive picture of the efficacy and impact on quality of life for plaque psoriasis patients. Furthermore, the analysis was conducted using random-effects and fixed-effects models, along with funnel plot evaluation to assess publication bias. However, this meta-analysis also has limitations: variations in follow-up duration and dosing regimens between studies that may contribute to variability in results, and very high heterogeneity in almost all outcomes (I^2 >80%), which may reduce the certainty of effect estimates. The relatively small number of studies on some outcomes, such as NAPSI, also makes the assessment of publication asymmetry less robust.

CONCLUSION

Based on nine randomized trials with a total of 4,185 participants, *Ixekizumab* demonstrated a high skin response rate, with most participants achieving PASI 75 and a substantial proportion achieving PASI 90 or even complete clearance (PASI 100) at the end of follow-up. Static Physician Global Assessment (sPGA) and Dermatology Life Quality Index (DLQI) scores also improved significantly, while approximately half of patients experienced complete resolution of itching. However, complete nail clearance (NAPSI 0) occurred in only a small proportion of patients. Treatment-related adverse events were observed in more than half of participants but were consistently reported across studies, with an overall low risk of bias, and funnel plot patterns did not indicate significant publication bias except for possible asymmetry in nail-related outcomes.

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