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Evidence Based Case Report: Secukinumab versus golimumab for Ankylosing Spondylitis Patients

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A B S T R A C T

Background: Ankylosing spondylitis is a chronic inflammation of the axial spine and joints that can lead to a wide spectrum of clinical manifestations, with chronic back pain and progressive vertebrae stiffness being two hallmark symptoms. The choice of medication for ankylosing spondylitis depends on both efficacy and cost. This study aims to compare Secukinumab, the cheapest and only available anti-interleukin-17, against Golimumab, a TNF-alpha inhibitor, in terms of efficacy and cost.
Methods: A systematic search was conducted until October 30th, 2023, using keywords such as ankylosing spondylitis, secukinumab, golimumab, ASAS20, and their synonyms on databases including PubMed, Embase, SCOPUS, and Cochrane to find relevant studies. Critical appraisal of included studies was performed using the Oxford Center of Evidence-based Medicine (CEBM) tools for harm scenarios.
Results: Three eligible articles were collected, observing both Secukinumab and Golimumab with different doses and administration routes. Chen et al.'s comparative analysis between secukinumab 150 mg and golimumab 50 mg revealed an odds ratio (OR) (95% confidence interval (CI)) of 1.19 (0.03-8.94), while secukinumab 150 mg against golimumab 100 mg presented an OR of 1.45 (0.03-11.98). Zhang et al.'s comparison results between golimumab and secukinumab yielded an OR of 0.62 (0.20-1.89). Finally, Deodhar et al. analyzed different doses of secukinumab and golimumab with an OR range of 1.04-1.15 (0.4-3.11).
Conclusion: Both secukinumab and golimumab showed comparable results in ASAS20, exhibiting insignificant differences in the superiority of ASAS20 improvement. However, the cost-effectiveness and personal drug choice need to be evaluated to add further considerations to the medication choice.

1. Clinical Scenario

A 20-year-old woman, Ms. T, received a diagnosis of radiographic axial spondyloarthritis, also known as ankylosing spondylitis. Seeking advice from a rheumatologist, she inquired about the most suitable Disease-Modifying Antirheumatic Drug (DMARD) for her condition. The rheumatologist presented two medication options: secukinumab, an anti-interleukin 17 drug, and various anti-TNF-alpha inhibitors (Adalimumab, Golimumab, Infliximab, and Etarnecept). Ms. F's decision hinges on cost, with secukinumab being the most economical among these choices. However, she faces a dilemma between secukinumab and golimumab, as they belong to different biological categories, and golimumab stands out as the most affordable TNF-alpha inhibitor. Consequently, she seeks guidance on which medication best suits her underlying condition.

2. Introduction

Axial spondyloarthritis (SpA) is a chronic inflammatory arthritis that primarily affects the axial spine and sacroiliac joints. The typical symptoms include early morning stiffness, limited range of

motion, back and alternating buttock pain, all indicative of inflammatory back pain. SpA can be categorized into two subtypes: non-radiographic SpA (nr-axSpA) and, if it could progresses into ankylosing spondylitis with radiographic findings (r-axSpA).[1] In patients with ankylosing spondylitis (AS), the radiographic progression of spinal disease is notably worse, occurring in 20–45% of patients with AS in just two years, and this progression is expected to continue in subsequent years, ultimately leading to complete spinal fusion, often referred to as "bamboo spine," in up to 40% of patients.[2]

Various treatment options are available for AS patients, including non-steroidal anti-inflammatory drugs (NSAIDs) and disease-modifying anti-rheumatic drugs (DMARDs), which consist of TNF-α inhibitors (Etanercept, Infliximab, Golimumab, Adalimumab, and Certolizumab) and anti-interleukin-17 (IL-17) drugs (Secukinumab and Ixezikumab).[2] In Indonesia, there are lesser varieties, that include NSAIDs, four choices in the TNF-α inhibitor group (Etanercept, Infliximab, Golimumab, and Adalimumab) and Secukinumab in the anti-IL-17 group. The choice of medication depends on three key factors: the medications themselves (effectiveness, administration route, monitoring, time to efficacy, adverse events, and cost), patient-related factors (compliance, comorbidities, disease severity, and prognosis), and healthcare provider-related considerations (competence in medication administration and monitoring).[3]

Medications for AS are administered to gain control over spinal and peripheral symptoms as well to prevent radiographic damage.[2] The efficacy of the medication can be evaluated through various assessments, such as ASAS response criteria (ASAS20, ASAS40, ASAS5/6, and ASAS partial remission), Ankylosing Spondylitis Disease Activity Score (ASDAS), Bath Ankylosing Spondylitis Disease Activity Index (BASDAI) response, physical function assessed by Bath Ankylosing Spondylitis Functional Index (BASFI), cost-effectiveness, etc. Among these assessments, the most commonly used in most studies is ASAS 20.[4] This assessment comprises four domains: patient global assessment, pain, function (BASFI), and inflammation (mean of BASDAI questions 5 and 6). To meet an ASAS20 response, three out of the four domains should improve by at least 20% with a minimum increase of one unit on a scale of 0 to 10. In the remaining domain, there should be no worsening of 20% with a minimum increase of 1 unit, on a scale from 0 to 10.[5]

This study aims to emphasize two primary aspects of medication choice: its efficacy and cost. In Indonesia, NSAIDs emerge as the most affordable option, but their efficacy diminishes as the disease progresses to the radiographic stage. On the other hand, within the anti-IL-17 group, Secukinumab stands out as the most economical choice, while in the TNF-α inhibitor group, Golimumab proves to be the most cost-effective option with similar adverse events (varies between individuals) between these two medications as an immunosuppressant.[3,6] Therefore, this study will assess the efficacy of these two medications, recognized for their effectiveness in ankylosing spondylitis (AS) patients and their cost-efficiency in Indonesia. The chosen method for evaluating efficacy will be the widely adopted ASAS20 assessment.

3. Clinical Question

In adult patients diagnosed with ankylosing spondylitis, which medication is the best, secukinumab or golimumab?

Table 1. PICO Formulation

Population	Intervention	Comparison	Outcome
Adult diagnosed with ankylosing spondylitis and naive in medications	Secukinumab	Golimumab	ASAS20
Clinical aspect	Therapy		
Study design	Systematic review / meta-analysis of randomized clinical trials or pivotal studies, randomized clinical trials, or pivotal studies.		
Clinical question	In adult patients diagnosed with ankylosing spondylitis and naive in medications, which medication is the best, secukinumab or golimumab?		

4. Methods

a. Article Search Strategy

Clinical questions were formulated based on the population, intervention, comparison, and outcome (PICO) criteria outlined in Table 1. A systematic search was conducted from October 27th to 30th, 2023, using Pubmed, Embase, SCOPUS, and Cochrane databases. The search utilized keywords such as ankylosing spondylitis, secukinumab, golimumab, ASAS20, and their synonyms to identify relevant studies. The included studies underwent critical appraisal using the Oxford Center of Evidence-based Medicine (CEBM) tools specifically designed for harm scenarios. Additionally, a manual search through the included studies was performed to identify any additional relevant research. The complete search strategy and keywords can be found in Table 2.

Table 2. Article Search Strategy

Database	Keywords / Search strategy	Hits	Selected Articles
Pubmed	(ankylosing spondyloarthritis) AND (secukinumab OR anti-interleukin 17 OR cosentyx OR IL-17 inhibitor) AND (golimumab OR anti TNF-alfa OR tumor necrosis factor α inhibitor) AND (ASAS20)	18	0
Cochrane	(ankylosing spondylitis) AND (secukinumab OR anti-interleukin 17 OR cosentyx OR IL-17 inhibitor) AND (golimumab) AND (ASAS 20)	3	2
SCOPUS	(TITLE-ABS-KEY (radiographic AND axial AND spondyloarthritis) OR TITLE-	12	0

	ABS-KEY (ankylosing spondylitis) AND TITLE-ABS-KEY (secukinumab) OR TITLE-ABS-KEY (anti-interleukin 17) AND TITLE-ABS-KEY (golimumab) OR TITLE-ABS-KEY (anti AND tnf-alfa) AND TITLE-ABS-KEY (asas20)		
EMBASE	('ankylosing spondyloarthritis' OR (ankylosing AND ('spondyloarthritis'/exp OR spondyloarthritis))) AND ('secukinumab'/exp OR secukinumab OR 'anti-interleukin 17' OR ('anti interleukin' AND 17) OR 'cosentyx'/exp OR cosentyx OR 'il-17 inhibitor' OR (('il 17'/exp OR 'il 17') AND ('inhibitor'/exp OR inhibitor))) AND ('golimumab'/exp OR golimumab OR 'anti tnf-alfa' OR (anti AND ('tnf alfa'/exp OR 'tnf alfa')) OR 'tumor necrosis factor α inhibitor' OR (('tumor'/exp OR tumor) AND ('necrosis'/exp OR necrosis) AND factor AND α AND ('inhibitor'/exp OR inhibitor))) AND (asas20)	29	3

b. Eligibility criteria

Screening processes were performed by all authors to filter all articles found in four different databases. The inclusion criteria consists of: (1) randomized controlled trial or pivotal study or systematic review &/meta-analysis of pivotal or RCTs, (2) using human subjects, (3) the subject is naive into medication, (4) using secukinumab (anti IL-17) and golimumab (anti TNF-alpha) as its intervention with subcutaneous administration route, whereas the exclusion criteria used are:(1) different assessment tool other than ASAS 20, studies not in English, and irretrievable full-text.

c. Critical Appraisal

Included studies were critically appraised using the Oxford Center of Evidence-based Medicine (CEBM) critical appraisal tools for harm scenarios by two authors, which consists of validity, importance, and applicability. If there is a different answer between two assessors, the determination is carried out according to the third author.

5. Results

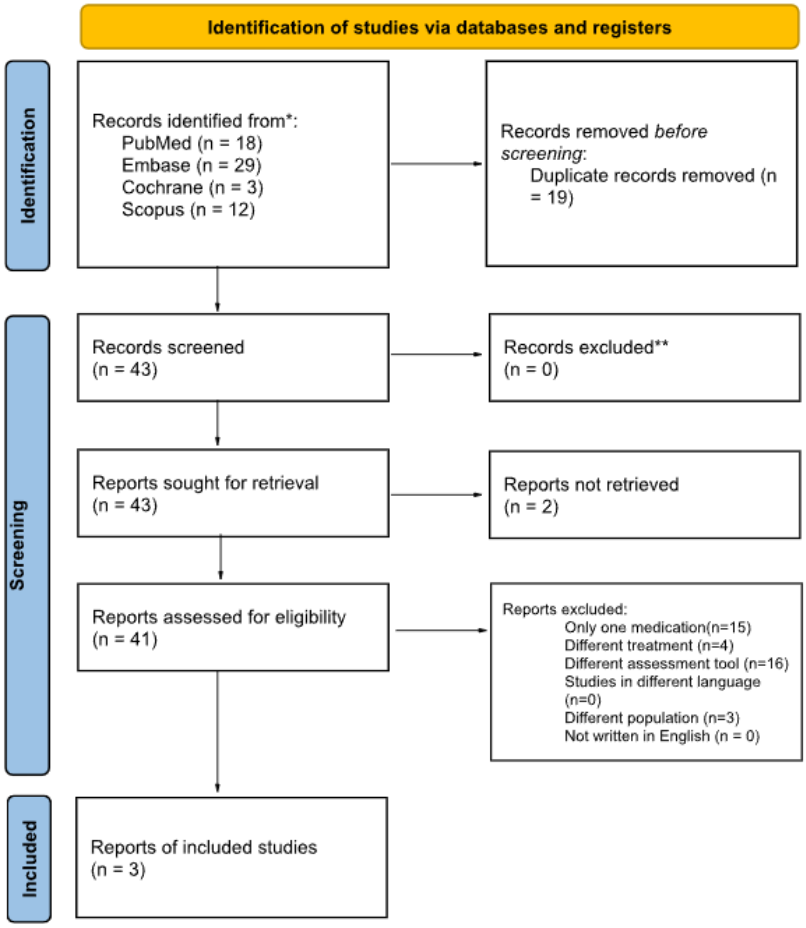

Figure 1. PRISMA Flowchart

a. Search Results

The search encompassed a total of 41 articles, each subjected to a thorough examination of their full texts following the deduplication process across multiple databases including Pubmed, Embase, Cochrane, and Scopus. Subsequently, 38 studies were omitted from consideration due to varying reasons: indirect comparison between Secukinumab and Golimumab (n=10), administration of different medications (n=4), utilization of distinct assessment tools to evaluate medication efficacy (n=15), and disparities within the sample populations (n=3). Ultimately, five articles were deemed pertinent and included in this study. The selection methodology, outlined in accordance with the PRISMA flowchart, is delineated in Figure 1.

b. Study Characteristics

The studies incorporated in this analysis comprise exclusively full-text papers. All three studies are ranked 1a. Among these investigations, three delineate the efficacy of secukinumab as a treatment over a span of 12 weeks. Notably, all studies underscore the positive impact of secukinumab treatment, indicating a higher ASAS 20 response, with odds ratios ranging from 0.61 to 1.45. A comprehensive overview of the assessed studies is presented in Table 3).

Table 1. Characteristics of Septic Arthritis Patients at RSUP dr. Kariadi 2017-2023

Author, Year	Design	Patient group	Outcome	Key Results	Comments
Chen et al, 2016	Meta-analysis of RCTs	Not stated clearly,the study encompasses a total of 2672 active AS patients distributed accross 6 treatments group and placebo	ASAS 20	In comparing ASAS20 result, secukinumab versus golimumab 50 mg yields an odds ratio (OR) of 1.19 (0.03-8.94), while golimumab 100 mg presents an n OR of 1.45 (0.03 - 11.98)	The quality of evidence in the network meta-analysis for secukinumab versus golimumab 50 mg and 100 mg is considered low and very low, respectively.
Zhang et al, 2016	Meta-analysis of RCTs	803 subjects were health controls. Among the AS patients, 550 patients were treated with adalimumab, 337 patients with etanercept, 360 patients with infliximab, 138 patients with golimumab, 125 patients with ct-p13, and 197 patients with secukinumab.	ASAS 20	Comparison between ASAS20 result for golimumab (50 mg) and secukinumab (150 mg) resulted in OR [95% CI] = 0.62 (0.20-1.89).	This study highlights Infliximab administered 5 mg/kg at 0, 2, 6 weeks seems to be the most effective therapy

Deodhar et al, 2020	Meta-analysis of RCTs	A total of 6771 patients were included in the study, yet specific, numbers within each groups are not explicitly delineated	ASAS 20	Secukinumab vs golimumab (dosage (mg)) 75 vs 50: OR 1.08 (0.45-2.52) 75 vs 100: OR 1.1 (0.42-2.97) 150 vs 50: OR 1.04 (0.49-2.19) 150 vs 100: 1.14 (0.47-2.7) 300 vs 50: OR 1.04 (0.43-2.63) 300 vs 100: OR 1.15 (0.4-3.11)	There is no clear evidence of one treatment being more effective than the other across the specified dosage comparisons.

c. Critical Appraisal

Based on the studies reviewed, the PICO framework aligned with our criteria, encompassing adult ankylosing spondylitis (AS) patients undergoing anti IL-17 treatment (specifically secukinumab) in comparison to TNF inhibitors (specifically golimumab), the same time span of treatment (12 weeks) with the outcome measured using ASAS20. The evidence is documented in Table 3, while validity components have been scrutinized and outlined in Table 4. However, the study conducted by Chen et al7. indicates a low and very low quality of evidence when comparing secukinumab to golimumab 50 mg and 100 mg. Notwithstanding, the study fulfills criteria pertaining to patient selection, the search strategy, study selection, and the utilization of ASAS20 for measurement. It also notes the challenge of inconsistency in indirect comparisons between the drugs.

In a meta-analysis RCTs by Zhang et al., three out of five validity components lack detailed information, notably randomization, result similarity, and data heterogeneity. From a statistical perspective, no significant disparity between secukinumab and golimumab is evident. This study also investigates other TNF-alpha inhibitors. Despite the lack of statistical difference among all TNF-alpha inhibitor and secukinumab, the study found that infliximab administered 5 mg/kg at 0, 2, 6 weeks was likely to have higher ASAS20 response rate compared with other drugs. The parallel efficacy and safety profiles observed between anti-TNFα and IL-17 suggest a potential new therapeutic avenue applicable in clinical settings. However, limitations include a small sample size and variations in treatment duration across studies, warranting further investigations.[8]

The study conducted by Deodhar et al. fulfills several essential criteria, encompassing patient selection, search strategy, and the utilization of ASAS20 for assessment. Within this investigation, a comparison between the doses of secukinumab and golimumab reveals no statistically significant difference. It is important to highlight that the study acknowledges the limited availability of clinical trial data for each treatment, which hinders the ability to draw robust conclusions regarding comparative efficacy.[9]

Table 4. Criteria of Validity, Importance, and Applicability

Author, Year	Study Design	P	I	C	O	Validity					Importance	Applicability	Level of Evidence
						F	A	I	T	H			
Chen et al, 2016[7]	Meta-analysis of RCTs	Patients with active ankylosing spondylitis	secukinumab	golimumab	Higher ASAS 20 response	+ Major database, MeSH terms and text	+ Cochrane Collaboration's Tool for Assessing Risk of Bias	+ The studies were considered to be at low risk of bias	+	+	secukinumab versus golimumab 50 mg (OR) of 1.19 (0.03-8.94), secukinumab versus golimumab 100 mg presents an n OR of 1.45 (0.03 - 11.98)	Could be applicable because secukinumab is currently available in Indonesia but depends on patients' drugs of choice	1a
Zhang, et.al[8]	Meta-analysis of RCTs	Patient with ankylosing spondiliti s	secukinumab	golimumab	≥ 20% improvement in the Assessment of Spondyloarthritis International Society Criteria (ASAS20)	+ Major database, inclusion and exclusion criteria	+ Jadad Score	+ Jadad Score >3	+	Unclear Not mentioned	OR [95% CI] = 0.62 (0.20-1.89)	The results can be applied in AS patients. However, adverse effect and cost-effectiveness need to be considered.	1a

Deodhar, et. al 2020[9]	Meta-analysis of RCTs	adults (≥ 18 years) diagnosed with active ankylosing spondylitis.	Secukinumab	Golimumab (subcutaneous (SC) formulations)	≥ 20% improvement in the Assessment of Spondyloarthritis International Society Criteria (ASAS20)	+ Major database, search strategy include MESH term and text	+ Analysed with Cochrane Risk of Bias	- 1 high risk of bias study is included	+	+	Secukinumumab vs golimumab (dosage (mg)) 75 vs 50: OR 1.08 (0.45-2.52) 75 vs 100: OR 1.1 (0.42-2.97) 150 vs 50: OR 1.04 (0.49-2.19) 150 vs 100: 1.14 (0.47-2.7) 300 vs 50: OR 1.04 (0.43-2.63) 300 vs 100: OR 1.15 (0.4-3.11)	There is no specific limit set on patients with AS, so it can be applied to AS patients here. Cost-effectiveness need to be considered to be deemed feasible in patient	1a

6. Discussion

a. Interpretation of Study Results, Strengths, and Limitations

Selecting the most suitable medication for ankylosing spondylitis (AS) relies on achieving higher scores in assessments such as ASAS20. Historically, TNF-alpha inhibitors have been renowned for their efficacy in treating ankylosing spondylitis which may influence the prescription comfort for medical practitioners.[10] However, TNF-alpha inhibitors are not universally well-tolerated among AS patients, with concerns arising up to 40% of patients showing inadequate response.[7,11] With the advancement of medications tailored for this condition, the inclusion of IL-17 inhibitors represents a pivotal advancement in the pharmaceutical sphere. The embrace of these new biological agents stems from their novel efficacy and perceived advantages, marking a notable progression in therapeutic options for ankylosing spondylitis. The selection of medication often hinges not only on patients' preferences but also on economic considerations.[12]

Comparatively, the cost per ASAS 20 for secukinumab stands at 65% less than that of golimumab. The introduction of secukinumab as a newer drug with reduced cost adds an additional dimension to the decision-making process regarding medication choices. Moreover, an evaluation of each patient's unique clinical profile becomes imperative to anticipate potential adverse events. It is noteworthy that while both medications function as immunosuppressants, their comparable side effects may vary based on individual responses.[12]

A meta-analysis study conducted by Chen, et al.[7] demonstrates promising outcomes for secukinumab treatment in attaining ASAS20. Notably, Secukinumab exhibits comparable efficacy to TNF-alpha inhibitor agents and is sanctioned as a chronic illness medication for ankylosing spondylitis for a duration of up to 5 years, mirroring TNF-alpha inhibitors like golimumab.[13,14] Hence anti IL-17 is prefered since the monoclonal antibody has a role in the pathogenesis. Comparative analysis between secukinumab 150 mg and golimumab 50 mg reveals an odds ratio (OR) of 1.19 (0.03-8.94), while secukinumab 150 mg against golimumab 100 mg presents an OR of 1.45 (0.03-11.98). Secukinumab 150 mg also demonstrates considerable improvement in AS signs and symptoms, providing evidence it has similar efficacy with golimumab. Therefore, patients could choose between those two medications. Despite the overall assessment indicating a low risk of bias among the included studies, the presence of one unblinded study might introduce potential bias. Second, given the relatively limited number of studies contributing to this comparative analysis, caution is advised in interpreting the rank probability plots due to insufficient stability in the results. Third, the comparison of safety among biologic therapy regimens for AS was not conducted due to the general safety of most regimens, with few severe adverse events reported. Finally, it's worth noting that the language restriction to English for included RCTs might have led to the potential omission of trials reported in other languages. This study holds significance as it represents the inaugural systematic review and network meta-analysis encompassing all available biologic therapy regimens for AS treatment, without limiting to anti-TNF agents. Additionally, it stands as the first comprehensive report meticulously conducted in alignment with the PRISMA Extension Statement for Reporting of Systematic Reviews Incorporating Network Meta-Analyses. By furnishing estimated comparative effectiveness data for these regimens alongside the GRADE rating of evidence quality, this study addresses the scarcity of comparative data in direct trials. Consequently, it offers clinicians and policymakers valuable reference material for making informed decisions when selecting biologic therapies for managing active AS. Additionally, findings highlight infliximab as the leading biologic therapy regimen, with secukinumab following closely and encourage further research into the potential of anti-IL-17 for AS treatment.[7,8]

In Zhang et al.'s meta-analysis RCTs,[8] no substantial difference in ASAS20 response rates

emerges between anti-TNFα and IL-17 (secukinumab) during a 12-week therapy period. The comparison between golimumab and secukinumab yields an OR of 0.62 (0.20-1.89), favoring golimumab contrary to other studies in this report. However, the lack of statistical difference suggests a comparable effect and safety profile between anti-TNFα and secukinumab, rendering secukinumab a viable alternative for patients. A study by Baeten et al. also mentioned the notable results of ASAS20 response rate similarity between anti-TNFα and secukinumab, both in patients that are naive to treatment or failed in previous anti-TNFα therapy.[15] Therefore, secukinumab can be chosen for patients who was unable to be treated with anti-TNFα. This meta-analysis of RCT also have several limitations, including the small sample size of study and variations between the dosage of treatment. Despite the limitations, the meta-analysis used high quality studies and its findings of secukinumab similarity in efficacy as anti-TNFα can be valuable for further research.

An additional finding from Zhang et al. and Chen et al. study also indicates that infliximab is more likely to exhibit a higher ASAS20 response rate.[7,8] This result aligns with a study conducted by Migliore et al, which compares various biologic agents, including secukinumab, golimumab, and infliximab. The research identifies infliximab as having the highest probability of achieving a higher ASAS20 response at 12 and 24 weeks, while golimumab achieves the highest probability of ASAS20 response when considering only subcutaneous biologics.16 These findings underscore the need for further research in this area, particularly within the Indonesian clinical setting, taking into account practical, safety, and economic considerations.

Similar to other meta-analyses, study by Deodhar et al, reveals comparable efficacy between secukinumab and golimumab at the varied dosage levels. Furthermore, if compared to other study, this study also suppported by a study by Tahir et al. also found no significant difference in ASAS response when indirectly comparing secukinumab and golimumab.[17] As a network meta-analysis, this study offers distinctive information on the effectiveness of various treatment options that have different mechanisms of action, aiming to enhance the knowledge available for making informed decisions about treatment. The conducted analyses followed established best practices for Network Meta-Analyses (NMAs) and utilized publicly accessible code to guarantee transparency and reproducibility. It was also stated that this was the first Network Meta-Analysis (NMA) that concurrently assesses existing and experimental treatments. However, there was a scarcity of clinical trial data for each treatment, which hindered the ability to assess the relative effectiveness of biologic and OSM therapies for active ankylosing spondylitis. The limited clinical data also constrained the selection of outcomes included in this analysis.9 Additional research is recommended to explore the potential differences in efficacy.

b. Result Consistency

The three studies outlined in this report reveal comparable odds ratio results with the same treatment weeks which is 12 weeks. In the study by Chen et al.7, which presents the findings of secukinumab 150 mg versus golimumab 50 mg, the odds ratio is 1.19 (0.03-8.94), and for secukinumab 150 mg versus golimumab 100 mg, it is 1.45 (0.03-11.98). However, the wide confidence intervals (CI) in these results, which indicated lower precision, raise concerns. In contrast, the studies by Zhang et al. and Deodhar et al. exhibit narrower CIs, with Zhang et al.'s golimumab and secukinumab comparison yielding an OR of 0.62 (0.20-1.89), and Deodhar et al.'s comparison consisted of secukinumab and golimumab with different doses without an OR that indicated any preference towards specific treatment, with OR variations of 1.04-1.15 and a narrow range of CI suggesting precision in their findings. Despite the similarity in odds ratios across all three studies, the results are not statistically deemed significant. Therefore, the conclusion drawn is that both secukinumab and golimumab demonstrate comparable efficacy and can be considered as

potential treatments for ankylosing spondylitis (AS).

c. Strengths and Limitations

To the authors' knowledge, this study stands as the initial endeavor providing an objective efficacy double comparison between secukinumab and golimumab in ASAS20, thereby offering considerations to patients when selecting medications. This is particularly significant, considering factors such as cost and variations in patient groups associated with these medications. However, the study's limitations stem from the restricted number of included studies and samples, along with its reliance solely on indirect comparisons.

d. Patient Recommendation

Based on the study findings, secukinumab demonstrates comparable efficacy to golimumab, suggesting its potential as a viable therapy for ankylosing spondylitis. In Indonesia, the 2014 recommendation by the Indonesian Rheumatology Association favors TNFα-inhibitors as the primary biological therapy for this condition, with anti-IL 17 serving as a cost-effective alternative, especially for patients unresponsive to TNFα-inhibitors. This study contributes additional evidence supporting the consideration of initiating treatment with secukinumab, given its similar efficacy to golimumab. However, patient preference and cost factors must be carefully weighed. Golimumab, belonging to an older class of medications with a longer history in medical practice, may be more familiar to some practitioners, influencing their prescribing comfort. On the other hand, secukinumab, as a newer drug with a lower cost, introduces an additional consideration. Furthermore, the individual clinical profile of each patient should be assessed to anticipate potential adverse events, recognizing that side effects from both medications are comparable due to their shared role as immunosuppressants but can vary based on individual responses.

e. Explicit Motivation

Future inquiries are essential to establish the efficacy and cost-effectiveness of pharmaceutical interventions, thereby providing comprehensive insights for patients and healthcare practitioners. The authors strongly advocate for expanded research involving larger sample sizes, the inclusion of direct comparison in original studies, and consideration of comparable baseline characteristics (ex. Dosage, treatment weeks etc). Such rigorous research endeavors aim to yield conclusive evidence regarding the potential of IL-17 as a therapeutic agent for ankylosing spondylitis.

f. Consideration regarding the Relevance and Validity of the Study

The findings of this study are pertinent to Indonesia, given the availability of secukinumab and golimumab within the country. Nevertheless, factors such as cost and individual preferences warrant careful consideration. Additionally, it is crucial to note that one study included in this report displays high heterogeneity, necessitating caution when interpreting its results. Moreover, patient preferences should be taken into account when making treatment decisions.

7. Conclusion

Based on all three studies, both Secukinumab and Golimumab showed comparable results in ASAS20. However, the cost-effectiveness and personal drug choice need to be evaluated to further add more considerations in medication choice.

References

1. Walsh JA, Magrey M. Clinical Manifestations and Diagnosis of Axial Spondyloarthritis. J Clin Rheumatol. 2021 Dec 1;27(8):e547-e560.
2. Karmacharya P, Duarte-garcia A, Dubreuil M, Murad MH, Shahukhal R, Shrestha P, et al. Effect of Therapy on Radiographic Progression in Axial Spondyloarthritis : A Systematic Review and Meta- Analysis. 2020;72(5):733–49.

3. Indonesia PR. Diagnosis dan Pengelolaan Spondiloartritis. 1st ed. Jakarta; 2021;1-100.
4. Sepriano A, Regel A, Heijde D Van Der, Braun J, Baraliakos X, Landewé R, et al. Efficacy and safety of biological and targeted-synthetic DMARDs : a systematic literature review informing the 2016 update of the ASAS / EULAR recommendations for the management of axial spondyloarthritis. 2017;3:e000396
5. Landewé R, van Tubergen A. Clinical Tools to Assess and Monitor Spondyloarthritis. Curr Rheumatol Rep. 2015 Jul;17(7):47.
6. Betts KA, Griffith J, Song Y, Mittal M. Network Meta-Analysis and Cost Per Responder of Tumor Necrosis Factor- α and Interleukin Inhibitors in the Treatment of Active Ankylosing Spondylitis Network Meta-Analysis and Cost Per Responder of Tumor Necrosis Factor- a and Interleukin Inhibitors in the Treatment of Active Ankylosing Spondylitis. Rheumatol Ther. 2016;(7):1.
7. Chen C, Zhang XL, Xiao L, Zhang XS, Ma XL. Comparative effectiveness of biologic therapy regimens for ankylosing spondylitis: A systematic review and a network meta-analysis. Medicine (United States). 2016;95(11).
8. Zhang D, Liu H, Zhou D, Chen Y. Anti-TNFα agents and interleukin-17 A inhibitor Secukinmuab have similar effects in improvement of ASAS 20, ASAS 40 , and safety : a meta-analysis. 2016;9(11):20668-20673.
9. Deodhar A, Chakravarty SD, Cameron C, Peterson S, Hensman R, Fogarty S, et al. A systematic review and network meta-analysis of current and investigational treatments for active ankylosing spondylitis. Clinical Rheumatology. 2020;39(8):2307–15. doi:10.1007/s10067-020-04970-3
10. Braun J, Baraliakos X, Heldmann F, Kiltz U. Tumor necrosis factor alpha antagonists in the treatment of axial spondyloarthritis. Vol. 23, Expert Opinion on Investigational Drugs. Informa Healthcare; 2014. p. 647–59.
11. Sepriano A, Regel A, van der Heijde D. et al. Efficacy and Safety of Biological and Targeted-Synthetic DMARDs: A Systematic Literature Review Informing the 2016 Update of the ASAS/EULAR Recommendations for the Management of Axial Spondyloarthritis. RMD Open. 2017;3:e000396. doi: 10.1136/rmdopen-2016-000396
12. Singgih Wahono C, Hamijoyo L, Hendrawan Y, Rakinaturia L, Mittal N, Khanna P, et al. Secukinumab in Ankylosing Spondylitis Patients: A Cost-per-Responder Analysis from the Indonesian Health System Perspective. Pharmacoecon Open [Internet]. 2023;7:605–15. Available from: https://doi.org/10.1007/s41669-023-00401-6
13. Maxwell LJ, Zochling J, Boonen A, Singh JA, Veras MMS, Tanjong Ghogomu E, et al. TNF-alpha inhibitors for ankylosing spondylitis. Vol. 2015, Cochrane Database of Systematic Reviews. John Wiley and Sons Ltd; 2015.
14. Gottlieb AB, Deodhar A, McInnes IB, Baraliakos X, Reich K, Schreiber S, et al. Long-term Safety of Secukinumab Over Five Years in Patients with Moderate-to-severe Plaque Psoriasis, Psoriatic Arthritis and Ankylosing Spondylitis: Update on Integrated Pooled Clinical Trial and Post-marketing Surveillance Data. Acta Derm Venereol. 2022;102.
15. Baeten D, Sieper J, Braun J, Baraliakos X, Dougados M, Emery P, et al. Secukinumab, an Interleukin-17A Inhibitor, in Ankylosing Spondylitis. N Engl J Med [Internet]. 2015 Dec 24 [cited 2023 Nov 18];373(26):2534–48. Available from: https://www.nejm.org/doi/10.1056/NEJMoa1505066.
16. Migliore A, Gigliucci G, Integlia D, Isailovic N, Frediani B. Differences in biologics for treating ankylosing spondylitis: the contribution of network meta-analysis. Eur Rev Med Pharmacol Sci. 2021 Jan;25(1):56–64.

17. Tahir H, Maksymowych W, Choy E, Yazici Y, Walsh J, Thom H, et al. 173 comparative effectiveness of secukinumab and golimumab in ankylosing spondylitis assessed by matching-adjusted indirect comparison using pivotal phase III clinical trial data. Rheumatology. 2018;57(suppl_3).