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**Title**: The Association between Obesity and Efficacy of Psoriasis Therapies: An Expert Consensus Panel

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## Abstract

**Background:** Psoriasis is a chronic inflammatory skin disease often associated with obesity. Psoriasis therapies may be less effective in obese patients. The purpose of this expert consensus panel is to evaluate the relationship between obesity and efficacy of psoriasis therapies, thereby optimizing patient care.

**Methods:** A comprehensive literature search was completed on July 19, 2024, using the keywords “psoriasis,” “obesity,” “efficacy,” “treatments,” and “therapies”. A panel of 11 dermatologists with significant expertise in treatment of psoriasis gathered to review the articles and create consensus statements. A modified Delphi process was used to approve each statement and a strength of recommendation was assigned.

**Results:** The literature search produced 500 articles. A screening of the studies resulted in 22 articles that met criteria. The panel unanimously voted to adopt 10 consensus statements and recommendations, six were given a strength of “A”, two were given a strength of “B”, and two was given a strength of “C”.

**Conclusion:** Psoriasis and obesity have a strong association. Obesity decreases efficacy of biologics and may decrease efficacy and potentiate side effects of conventional therapies. It also impacts drug survival. Weight control is a vital component of caring for psoriasis patients and the number of therapeutic options available is rising.

## Capsule Summary

- Obesity is an independent risk factor for psoriasis and decreases efficacy of psoriasis therapies, particularly biologics. Weight control is an important part of psoriasis management and may improve efficacy of therapies.
- An expert consensus panel developed ten consensus statements on the effect of obesity on psoriasis therapies to help guide clinical decision-making.

## Introduction

Psoriasis is a chronic inflammatory immune-mediated skin disease associated with many systemic comorbidities[1-3]. Obesity(body mass index(BMI)$\geq$30kg/m$^2$) is one of the most prevalent conditions associated with psoriasis[1,4–7]. Psoriasis patients have >50% increased odds of obesity, and obesity is an independent risk factor for new onset and worsening of psoriasis[1,8,9]. As there are a growing number of treatment choices available for psoriasis, selection for which therapy to utilize depends on factors such as severity of psoriatic disease and presence of comorbid diseases[10–13]. Notably, the literature demonstrates that psoriasis therapies may be less effective in patients with obesity when compared to those with a lower BMI[2,14–20].

The purpose of this expert consensus panel was to review the published literature on the relationship between obesity and psoriasis therapies to provide guidance on their usage, thereby informing clinical decision-making and optimizing patient care in the management of psoriasis.

## Methods

### *Literature Search and Study Selection*

A comprehensive literature search of PubMed, Scopus, and Google Scholar was completed on July 19, 2024, using keywords “psoriasis,” “obesity,” “efficacy,” “treatments,” and “therapies” along with Boolean term “AND” for English-language original research articles, systematic reviews, and meta-analyses without date restrictions. This study did not require IRB approval. Articles were screened for relevance to relationship between psoriasis and obesity. Eleven experts were selected for their expertise in the management of psoriasis and were asked to participate in a panel. The articles that met inclusion criteria were distributed to the panelists, and each member of the panel assigned them a level of evidence based on Strength of

Recommendation Taxonomy(SORT) criteria[21]. These levels include level 1(good-quality,patient-oriented evidence), level 2(limited-quality,patient-oriented evidence), or level 3(other)[21].

*Development of Consensus Statements*

The panel convened on August 24, 2024, to discuss the studies and create consensus statements. In order to reach consensus for each statement, a modified Delphi process was utilized[22]. This process requires supermajority approval for adoption of a recommendation through multiple rounds of real-time voting and is a regularly utilized method to create expert recommendations in dermatology[23–25]. Consensus statements were assigned a strength of recommendation of A(consistent,good-quality,patient-oriented evidence), B(inconsistent,limited-quality,patient-oriented evidence, or C(consensus, opinion, etc.).

## Results

*Literature Search and Study Selection*

The literature search resulted in 500 articles that met search criteria. After comprehensive screening process, 22 articles were selected as relevant to the research questions. These articles were distributed to the panelists for evaluation prior to roundtable discussion.

*Levels of Evidence Designation*

For the 22 articles that were evaluated, the panel assigned level 1 evidence to five articles, level 2 evidence to 12 articles, and level 3 evidence to five articles [**Table I**].

*Consensus Statements*

The panel developed ten consensus statements regarding the relationship of obesity and efficacy of psoriasis therapies. Of the ten statements, all received a unanimous (11/11) vote for adoption. SORT criteria were utilized to assign a strength to each statement and recommendation [**Table II**].

**Statement 1:** *Psoriasis is associated with obesity.(SORT Level A)*

Meta-analyses have demonstrated that psoriasis patients are at an increased odds of obesity[1,8,26]. The association is thought to be due to activated macrophages in adipose tissue stimulating adipocytes to release inflammatory cytokines and adiponectin, which creates a chronic inflammatory state[1,4,13].

The presence of psoriasis has been linked with a higher prevalence and incidence of obesity, with more severe psoriasis showing greater odds of obesity compared to mild psoriasis[1,8,26]. In a genetic study using polymorphisms associated with BMI(as proxy for BMI), for every increase in BMI by one unit there is an associated 9% increased risk of developing psoriasis[4].

Additionally, the Utah Psoriasis Initiative found that presence of obesity was greater in psoriasis patients than the general public(34%vs.18%,$p<0.001$)[27]. In the Nurses' Health Study, women with greater BMI and weight gain were discovered to have a higher risk of incident psoriasis[28,29]. BMI was also a significant risk factor for developing psoriatic arthritis[30]. Clinicians should be aware of the strong bidirectional association between psoriasis and obesity.

**Statement 2:** *Obesity is an independent risk factor for the development of psoriasis.(SORT Level A)*

Obesity is an independent risk factor for psoriasis[1,5]. Across 16 observational studies, pooled odds ratio(OR) was 1.66(95%CI:1.46-1.89) for the association between psoriasis and obesity[1,5]. Further, pooled OR was greater for severe psoriasis(2.23,95%CI:1.63-3.05) compared to mild(1.46,95%CI:1.17-1.82)[1,5]. These results demonstrate that patients with psoriasis have >50% higher odds of having obesity compared to non-psoriasis patients. A prospective study of female nurses found a statistically significant graded positive association between BMI and risk of psoriasis[28]. Using BMI<25.0kg/$m^2$ as the comparison group, BMI 25.0-29.9kg/$m^2$ had a relative risk(RR) of 1.21 for psoriasis, BMI 30.0-34.9kg/$m^2$ had 1.63 RR and BMI 35+ had 2.03 RR[28]. Gaining weight after age 18 years was also significantly associated with a higher risk of psoriasis[28]. Another large prospective population-based study of patients in Norway revealed that obese patients had 1.87 RR and those with weight change of ≥10kg had 1.72 RR for developing psoriasis[31]. Additionally, a study found 93% of children were overweight/obese at psoriasis onset and at 1 and 2 years prior to onset, further substantiating obesity as a risk factor for psoriasis[32].

**Statement 3:** *Obese psoriasis patients have a higher risk of diabetes, metabolic syndrome, and cardiovascular disease.(SORT Level A)*

The expert consensus panel emphasized the higher risk of diabetes, metabolic syndrome, and cardiovascular disease in obese psoriasis patients[13]. A meta-analysis found psoriasis patients had 1.59 OR for diabetes compared to controls[33]. The prevalence of diabetes is higher in psoriasis patients vs. controls(12.1%vs.6%)[34] and there is also a significant association between mild-moderate psoriasis and type-2 diabetes(37%vs.16%)[35]. One study found that 34% of psoriasis patients met criteria for metabolic syndromevs.26% of controls[36]. A meta-analysis of 12 observational trials reported a pooled adjusted OR of 2.26 for association of metabolic syndrome with psoriasis[37]. Cardiovascular disease has also been extensively reported with psoriasis[13,38,39]. The expert panel stressed the importance of understanding comorbidities in psoriasis patients.

**Statement 4:** *Obesity decreases efficacy of psoriasis treatment with biologics.(SORT Level A)*

Efficacy of biologics for treatment of psoriasis is negatively affected by higher BMI[10,20]. In a prospective analysis of patients treated with biologic therapies in the Corrona Psoriasis Registry, obesity reduced odds of achieving Psoriasis Area and Severity Index(PASI)75 by 25% and PASI90 by 30%[2]. A systematic review revealed similar findings, with a majority of articles reporting lower rates of achieving PASI75 and PASI90 in those with obesity[20]. Further, a multicenter retrospective study reported PASI90 was achieved by 56.6% of patients at 24 weeks with BMI ≥30kg/$m^2$ compared to 66.8% with BMI≤30kg/$m^2$ [15]. In a nationwide cohort study of >8,000 patients, adjusted OR for achieving PASI75 was 0.73 for obese patients at 8 weeks decreasing to 0.62 at 16 weeks compared to patients with normal BMI[19].

More specifically, obesity is associated with reduced odds of responses to TNFi(PASI75 by 33%, PASI90 by 43%, Investigator's Global Assessment(IGA) 0/1 by 47%) and IL-17i(PASI75 by 34%, PASI90 by 37%)[2]. For IL-23i and IL-12/23i, obesity also decreased the odds of achieving IGA0/1 by 30%[2]. Post-hoc analyses from phase III clinical trials including guselkumab, adalimumab, and secukinumab further substantiate these relationships[40]. A pooled analysis showed that response rates to secukinumab were higher in those with lower BMI[41]. Etanercept also had a similar trend though to a lesser extent but ustekinumab, which has weight-based dosing, did not have this association[41].

Literature demonstrates that the most efficacious psoriasis therapies can benefit patients at any BMI level, but there is reduction in efficacy in the highest BMI ranges. An analysis of moderate-to-severe psoriasis patients treated with guselkumab found that despite improvement in psoriasis severity, obese patients were less likely to achieve PASI90(46%vs.56%) and IGA score of 0/1(57%vs.72%)[42]. A comparative study with adalimumab demonstrated significant PASI75 response in obese patients, though response was lower than those with normal or overweight BMI[43]. For ixekizumab, a phase III trial sub-analysis stratifying patients by BMI(<80kg,80-100kg,≥100kg) found that PASI75 rates were similar at week 12 across all cohorts in the every 2 weeks(Q2W) dosing group[44]. For every 4 weeks(Q4W) dosing there was a trend toward lower PASI75 in higher BMI cohorts[44]. Additionally, a meta-analysis for TNFi calculated that obese patients had 60% greater odds of failing treatment[45]. The expert panel recognized that the impact of obesity on response rates is greater especially for therapies with lower efficacy.

Because obesity decreases efficacy of psoriasis therapies, these patients may require higher doses of medications. In a multicenter trial, patients weighting ≥90kg received secukinumab 300mg Q2W or Q4W[46]. After 16 weeks a higher PASI90 was achieved with Q2W vs. Q4W dosing(73.2%vs.55.5%,p=0.0003)[46]. This response was maintained after 52 weeks with Q2W dosing, PASI75 88.9%vs.74.8%, PASI90 76.4%vs.52.4%, PASI100 46.7%vs.27.3%, IGA0/1 75.9%vs.55.6%[46]. Though elevating doses can improve efficacy, there remains a lower overall treatment response at higher BMI.

**Statement 5:** *Obesity may decrease efficacy and potentiate side effects of conventional oral psoriasis therapies (e.g., methotrexate, cyclosporine, and acitretin).(SORT Level A)*

Obese psoriasis patients have decreased response to methotrexate, cyclosporine, and acitretin. One study found that obese patients had a lower odds of achieving PASI75 with methotrexate compared to non-obese patients after 8 weeks(OR-0.65) and 16 weeks(OR-0.76)[19]. Similar results were reported for cyclosporine(8 weeks OR-0.64, 16 weeks OR-0.56) and acitretin(8 weeks OR-0.68, 16 weeks OR-0.58)[19]. Obese patients treated with methotrexate also reported that it is “no longer effective”(13%vs.3%,p=0.008)[27].

Additionally, obesity increases likelihood of adverse effects of these agents. Obese patients have a greater risk of hepatotoxicity with methotrexate and current guidelines substantiate this relationship[47–50]. Obesity is also a significant risk factor for nephrotoxicity with cyclosporine[51]. Cyclosporine can also worsen hypertension and hyperlipidemia, which are common comorbidities of obesity[13]. Though the package insert recommends that cyclosporine be administered based on ideal body weight, guidelines suggest that obese patients are more effectively treated when dosing is based on actual body weight[17]. This dosing regimen, however, can increase likelihood of adverse events. Similarly, obese patients require higher doses of acitretin, which can potentiate risk of lipid abnormalities[13].

**Statement 6:** *Limited data exist for the potential impact of obesity on apremilast and deucravacitinib efficacy.(SORT Level C).*

Though limited evidence exists for impact of obesity on apremilast, analysis of phase III trial data suggests that BMI does not have an impact on apremilast efficacy[52]. There was no difference in PASI75 in patients with BMI$<$30kg/m$^2$ or $\geq$30kg/m$^2$ treated with apremilast(26.5%vs.26.1%). A real-life longitudinal study stratified 159 patients by BMI($<$25.3/25.3-29.4/$>$29.4kg/m$^2$) and found that there was similar improvement in PASI scores in all BMI cohorts[53]. However, a prospective real-world study of 48 patients treated with apremilast found that patient weight inversely correlated with PASI50, and no obese patients reached PASI75[54]. Apremilast may be associated with reduction in weight, as studies report that psoriasis patients experience a decrease in BMI with apremilast treatment[55,56].

Efficacy of deucravacitinib was compared by BMI categories(<25/25-30/30-35/≥35kg/m$^2$)[57]. Each BMI group and body weight decile demonstrated significant improvement in PASI75 at week 16 compared to placebo[57]. In addition, all BMI categories except ≥35kg/m$^2$ had greater rate of achieving PASI75 compared to apremilast[57]. Additional research is required regarding these relationships.

**Statement 7:** *Obese psoriasis patients may require larger quantities of topical therapies and may experience increased difficulty in applying medications and side effects.(SORT Level C)*

Obese patients have larger body surface area which yields therapeutic challenges[58]. For topical therapies, body surface area(BSA) is not considered by insurance companies when determining quantity covered. As such, patients with larger BSA have limited ability to apply topical treatments as the amount required is greater and they may be undertreated. Further, there is a greater risk of adverse events given increased quantity required by obese patients. Because of a greater number of body folds and intertriginous regions, obese patients may be at a greater risk of adverse events in these sensitive areas.

**Statement 8:** *Obesity impacts drug survival for psoriasis therapies.(SORT Level A)*

Drug survival is the duration of adherence to a therapeutic agent. Also known as drug retention/persistence, it represents long-term effectiveness and safety of therapies, commonly biologics, in the real world[59]. Drug survival for first-line biologic therapies for psoriasis is significantly shorter for obese patients, where median drug survival at 12 months was 63%(vs.73% in non-obese patients)[16]. In a meta-analysis of 13 studies, obesity predicted treatment discontinuation of biologics for psoriasis(hazard ratio(HR)-1.21), though there is variability regarding how efficacy of specific biologics is affected by weight[15-18].

The primary reason for drug discontinuation was inefficacy or loss of efficacy, which was more common for obese patients for all biologics[15,16,18,60]. Multivariate Cox regression analysis showed that BMI was a predictor for discontinuation of biologics(ustekinumab/etanercept/adalimumab) due to ineffectiveness(HR 1.25)[60]. This data is vital for clinicians to understand how real-world drug survival is impacted by obesity and factors that may lead to increased likelihood of treatment discontinuation.

**Statement 9:** *Treatment of obesity may improve efficacy of psoriasis therapies.(SORT Level B)*

Lowering BMI can lead to improvement in efficacy of therapies[10]. A randomized prospective trial evaluating the effect of weight reduction by dietary control on biologic(infliximab/etanercept/ustekinumab/adalimumab) efficacy found that the mean PASI improved by 84% in the diet groupvs.69% in the control group[61]. PASI75 was also achieved by 85.9% in the diet groupvs.59.3% in the control($p<0.001$), providing evidence that weight reduction may increase biologic efficacy[61]. In another randomized control trial, patients on a low-calorie diet and cyclosporine achieved PASI75 at a greater rate compared to cyclosporine alone(66.7%vs.29.0%,$p<0.001$)[62].

Management of psoriasis patients should involve treatment of obesity. While access may be limited to certain medications for weight loss at this time, the expert panel encourages adoption of a comprehensive approach in management of psoriasis patients.

**Statement 10:** *Weight control is an important part of psoriasis management.(SORT Level B)*

The joint American Academy of Dermatology and National Psoriasis Foundation guidelines encourage clinicians to implement screening measures including weight and counseling of lifestyle modification[13]. The holistic approach to weight management includes dietary changes and exercise regimen. However, it may not be feasible for the psoriasis patient population to effectively exercise due to comorbid conditions, namely psoriatic arthritis.

Thus, for psoriasis patients for whom dietary changes and exercise are not sufficient or is not feasible, weight loss therapies may be an effective choice. The expert panel acknowledges that dermatologists should be encouraged to take ownership of weight loss management and consider use of weight loss medications. The majority of panel participants(6/11) have prescribed weight loss drugs for their psoriasis patients and believe this is something dermatologists should be considering. Otherwise, patients should be advised to follow up closely with their primary care physician. Disparities in weight loss management exist, however, as those with lower socioeconomic status have less accessibility to weight loss drugs. Evidence regarding surgical weight loss options for psoriasis patients has been inconclusive[63,64].

**Conclusion**

An expert consensus panel completed a comprehensive review of the literature and developed ten consensus statements on the relationship between obesity and psoriasis therapies. Obesity decreases the efficacy of biologic therapies and may decrease the efficacy and potentiate side effects of conventional therapies. It also impacts drug survival. Weight control is a vital component of caring for psoriasis patients and there are growing therapeutic options available. The panel's consensus recommendations can guide clinicians in the management of patients with obesity and psoriatic disease.

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**Abbreviations**

Body mass index (BMI)
Strength of Recommendation Taxonomy (SORT)
Odds ratio (OR)
Relative risk (RR)
Psoriasis Area and Severity Index (PASI)
Investigator's Global Assessment (IGA)
Every 2 weeks (Q2W)
Every 4 weeks (Q4W)
Hazard ratio (HR)

**Table Legends**

**Table I.** SORT criteria level of evidence for articles.
**Table II.** Consensus statements and recommendations.

**Table I.** SORT criteria level of evidence for articles.

| Article | Level of Evidence |
|---|---|
| Al-Mutairi N, Nour T. The effect of weight reduction on treatment outcomes in obese patients with psoriasis on biologic therapy: a randomized controlled prospective trial. *Expert Opin Biol Ther*. 2014;14(6):749-756. doi:10.1517/14712598.2014.900541 | 2 |
| Armstrong AW, Fitzgerald T, McLean RR, et al. The Effectiveness of Guselkumab by BMI Category Among Patients with Moderate-to-Severe Plaque Psoriasis in the CorEvitas Psoriasis Registry. *Adv Ther*. 2023;40(5):2493-2508. doi:10.1007/s12325-023-02467-4 | 2 |
| Armstrong AW, Harskamp CT, Armstrong EJ. The association between psoriasis and obesity: a systematic review and meta-analysis of observational studies. *Nutr Diabetes*. 2012;2(12):e54. Published 2012 Dec 3. doi:10.1038/nutd.2012.26 | 2 |
| Assan F, Tubach F, Arlegui H, et al. First-Line Biologic Therapy and Obesity in Moderate-to-Severe Psoriasis: Results from the Prospective Multicenter Cohort Psobioteq. *Dermatology*. 2021;237(3):338-346. doi:10.1159/000513398 | 2 |
| Budu-Aggrey A, Brumpton B, Tyrrell J, et al. Evidence of a causal relationship between body mass index and psoriasis: A mendelian randomization study. *PLoS Med*. 2019;16(1):e1002739. Published 2019 Jan 31. doi:10.1371/journal.pmed.1002739 | 3 |
| Egeberg A, Conrad C, Gorecki P, et al. Response Types and Factors Associated with Response Types to Biologic Therapies in Patients with Moderate-to-Severe Plaque Psoriasis from Two Randomized Clinical Trials. *Dermatol Ther (Heidelb)*. 2024;14(3):745-758. doi:10.1007/s13555-024-01123-1 | 1 |
| Elmets CA, Leonardi CL, Davis DMR, et al. Joint AAD-NPF guidelines of care for the management and treatment of psoriasis with awareness and attention to comorbidities. *J Am Acad Dermatol*. 2019;80(4):1073-1113. doi:10.1016/j.jaad.2018.11.058 | 3 |
| Enos CW, Ramos VL, McLean RR, et al. Comorbid obesity and history of diabetes are independently associated with poorer treatment response to biologics at 6 months: A prospective analysis in Corrona Psoriasis Registry. *J Am Acad Dermatol*. 2022;86(1):68-76. doi:10.1016/j.jaad.2021.06.883 | 2 |
| Kaushik SB, Lebwohl MG. Psoriasis: Which therapy for which patient: Focus on special populations and chronic infections. *J Am Acad Dermatol*. 2019;80(1):43-53. doi:10.1016/j.jaad.2018.06.056 | 3 |
| Mourad A, Straube S, Armijo-Olivo S, Gniadecki R. Factors predicting persistence of biologic drugs in psoriasis: a systematic review and meta-analysis. *Br J Dermatol*. 2019;181(3):450-458. doi:10.1111/bjd.17738 | 1 |
| Naldi L, Addis A, Chimenti S, et al. Impact of body mass index and obesity on clinical response to systemic treatment for psoriasis. Evidence from the Psocare project. *Dermatology*. 2008;217(4):365-373. doi:10.1159/000156599 | 2 |
| Osman A, Nigro A, Taylor AC, Saal R, Ormaza Vera A, Enos C. The Effects of Cardiometabolic Comorbidities on Biologic Treatment for Psoriasis with Respect to PASI Scores: A Qualitative Systematic Review. *Psoriasis (Auckl)*. 2024;14:1-10. Published 2024 Jan 10. doi:10.2147/PTT.S441642 | 2 |
| Paroutoglou K, Papadavid E, Christodoulatos GS, Dalamaga M. Deciphering the Association Between Psoriasis and Obesity: Current Evidence and Treatment Considerations. *Curr Obes Rep*. 2020;9(3):165-178. doi:10.1007/s13679-020-00380-3 | 3 |
| Pinter A, Gerdes S, Papavassilis C, Reinhardt M. Characterization of responder groups to secukinumab treatment in moderate to severe plaque psoriasis. *J Dermatolog Treat*. 2020;31(8):769-775. doi:10.1080/09546634.2019.1626973 | 1 |
| Pirro F, Caldarola G, Chiricozzi A, et al. Impact of Body Mass Index on the Efficacy of Biological Therapies in Patients with Psoriasis: A Real-World Study. *Clin Drug Investig*. 2021;41(10):917-925. doi:10.1007/s40261-021-01080-z | 2 |
| Reich K, Puig L, Mallbris L, Zhang L, Osuntokun O, Leonardi C. The effect of bodyweight on the efficacy and safety of ixekizumab: results from an integrated database of three randomised, controlled Phase 3 studies of patients with moderate-to-severe plaque psoriasis. *J Eur Acad Dermatol Venereol*. 2017;31(7):1196-1207. doi:10.1111/jdv.14252 | 1 |
| Singh S, Facciorusso A, Singh AG, et al. Obesity and response to anti-tumor necrosis factor-α agents in patients with select immune-mediated inflammatory diseases: A systematic review and meta-analysis [published correction appears in PLoS One. 2018 Aug 29;13(8):e0203499. doi: 10.1371/journal.pone.0203499]. *PLoS One*. 2018;13(5):e0195123. Published 2018 May 17. doi:10.1371/journal.pone.0195123 | 2 |

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|---|---|
| Takeshita J, Grewal S, Langan SM, et al. Psoriasis and comorbid diseases: Epidemiology. *J Am Acad Dermatol*. 2017;76(3):377-390. doi:10.1016/j.jaad.2016.07.064 | 3 |
| Zweegers J, van den Reek JM, van de Kerkhof PC, et al. Body mass index predicts discontinuation due to ineffectiveness and female sex predicts discontinuation due to side-effects in patients with psoriasis treated with adalimumab, etanercept or ustekinumab in daily practice: a prospective, comparative, long-term drug-survival study from the BioCAPTURE registry. *Br J Dermatol*. 2016;175(2):340-347. doi:10.1111/bjd.14552 | 2 |
| Herron MD, Hinckley M, Hoffman MS, et al. Impact of obesity and smoking on psoriasis presentation and management. *Arch Dermatol*. 2005;141(12):1527-1534. doi:10.1001/archderm.141.12.1527 | 2 |
| Kumar S, Han J, Li T, Qureshi AA. Obesity, waist circumference, weight change and the risk of psoriasis in US women. *J Eur Acad Dermatol Venereol*. 2013;27(10):1293-1298. doi:10.1111/jdv.12001 | 1 |
| Becker L, Tom WL, Eshagh K, Benjamin LT, Paller AS. Excess adiposity preceding pediatric psoriasis. *JAMA Dermatol*. 2014;150(5):573-574. doi:10.1001/jamadermatol.2014.324 | 2 |

**Table II.** Consensus statements and recommendations.

| Consensus Statement/Recommendation | Strength of Recommendation | Consensus Vote |
|---|---|---|
| *Psoriasis is associated with obesity* | A | 11/11 |
| *Obesity is an independent risk factor for the development of psoriasis* | A | 11/11 |
| *Obese psoriasis patients have a higher risk of diabetes, metabolic syndrome, and cardiovascular disease* | A | 11/11 |
| *Obesity decreases efficacy of psoriasis treatment with biologics* | A | 11/11 |
| *Obesity may decrease efficacy and potentiate side effects of conventional oral psoriasis therapies (e.g., methotrexate, cyclosporine, and acitretin)* | A | 11/11 |
| *Limited data exists for the potential impact of obesity on apremilast and deucravacitinib efficac.* | C | 11/11 |
| *Obese psoriasis patients may require larger quantities of topical therapies and may experience increased difficulty in applying medications and side effect.* | C | 11/11 |
| *Obesity impacts drug survival for psoriasis therapies* | A | 11/11 |
| *Treatment of obesity may improve efficacy of psoriasis therapies* | B | 11/11 |
| *Weight control is an important part of psoriasis management* | B | 11/11 |