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Assessing the Role of Metabolic Factors in Psoriasis Management

Ryan Quigley:
Psoriasis is a chronic inflammatory disease, but many patients also live with obesity, metabolic dysfunction, and cardiometabolic comorbidities. Clinicians have long suspected that body size influences both disease severity and response to treatment, especially with biologic therapies. But which metrics matter most, and how strong is the evidence?

You're listening to *AudioAbstracts* on ReachMD. I'm Ryan Quigley, and that's the question addressed by a large real-world study published in the *Journal of Translational Medicine* in 2025. Using data from a prospective multicenter cohort in China, the investigators examined how body mass index, or BMI, basal metabolic rate, or BMR, body surface area, or BSA, and body weight relate to psoriasis severity and treatment outcomes across multiple therapies.

This analysis drew from the Shanghai Psoriasis Effectiveness Evaluation CoHort, or SPEECH, a prospective observational study launched in 2022. The cross-sectional analysis included 1,955 adults with moderate-to-severe plaque psoriasis, while 1,663 patients were followed longitudinally to assess treatment response. Patients received phototherapy, conventional systemic therapies, or biologic agents.

So, what did the analysis find? Well, at baseline, all four body size and metabolic parameters showed a consistent pattern. Higher BMI, BMR, BSA, and body weight were each independently associated with greater psoriasis severity, as measured by the Psoriasis Area and Severity Index, or PASI. These associations remained significant after adjusting for age, sex, disease duration, smoking, alcohol use, prior treatment, and metabolic comorbidities. In short, larger body size and higher metabolic load tracked with more severe skin disease.

Additional clinically impactful findings emerged in the longitudinal analyses.

At both Week 12 and Week 20, higher values of BMI, BMR, BSA, and body weight were associated with a lower likelihood of achieving PASI 75, PASI 90, or PASI 100, as well as smaller overall reductions in PASI score. For example, each one-unit increase in BMI reduced the odds of achieving PASI 90 by about six to seven percent. Similar inverse relationships were seen across all four metrics.

When the authors stratified by treatment modality, an important distinction became clear. These negative associations were strongest and most consistent among patients receiving biologic therapies. In contrast, body size and metabolic parameters showed no consistent relationship with response among patients treated with conventional systemic drugs or narrow-band ultraviolet B phototherapy.

Digging deeper into biologic subtypes, one therapy stood out. In patients treated with ustekinumab, body size and metabolic metrics showed increasing predictive accuracy as response thresholds became more stringent. Receiver operating characteristic analyses demonstrated higher area-under-the-curve values for predicting PASI 90 and PASI 100 than for PASI 75, suggesting that body composition plays a particularly important role in determining high-level skin clearance with this fixed-dose agent.

So why might this be happening?

The authors point to several plausible mechanisms. Most biologics are administered at fixed doses, meaning patients with larger body mass receive lower drug exposure per kilogram. Increased body surface area may also dilute effective drug concentration across inflamed skin. Beyond pharmacokinetics, obesity-related chronic inflammation, insulin resistance, and adipokine dysregulation may further blunt therapeutic response.

Now, the study does have limitations. It was observational, some patients were lost to follow-up, and pharmacokinetic drug-level data were not available. Sample sizes for individual biologics were modest, particularly for ustekinumab. Still, sensitivity analyses supported

the robustness of the findings.

The clinical takeaway is that elevated BMI, BMR, BSA, and body weight are not just background characteristics. They are meaningful predictors of psoriasis severity and biologic treatment response. For clinicians, this underscores the importance of metabolic assessment and raises important questions about fixed-dose biologic strategies. As psoriasis care moves toward precision medicine, body composition may need to play a more central role in treatment selection and dosing decisions.

This has been an *AudioAbstract*, and I'm Ryan Quigley. To access this and other episodes in our series, visit ReachMD.com, where you can Be Part of the Knowledge. Thanks for listening!

Reference:

Xu Y, Peng C, Tang S, et al. Association of BMI, BMR, BSA, and body weight with psoriasis severity and treatment response: evidence from a real-world cohort. *J Transl Med*. 2025;23(1):1129. Published 2025 Oct 17. doi:10.1186/s12967-025-07130-w