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#### LETTERS TO THE EDITOR

# Effect of Biological Therapy on the Risk of Sleep Apnea in Patients with Psoriasis

Reply to Gupta et al. Bidirectional relationship between obstructive sleep apnea (OSA) and psoriasis: implications for OSA therapies? *J Clin Sleep Med* 2016(9);12:1309.

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We thank Gupta and colleagues<sup>1</sup> for the interest in, and positive comments on, our recent publication,<sup>2</sup> which examined the relationship between psoriasis and obstructive sleep apnea (OSA). We agree that the putative anti-inflammatory effects of continuous positive airway pressure (CPAP) therapy may have therapeutic implications for development and progression of psoriatic disease in patients with OSA.

In their commentary, Gupta et al. note that systemic treatment with biological agents may potentially confound the relationship between psoriasis or psoriatic arthritis, and OSA. We agree with this observation; however, we emphasize that our definition of severe psoriasis included treatment not only with biological agents, but also cyclosporine, photochemotherapy (PUVA), retinoids (acitretin/etretinate), or methotrexate. In Denmark, guidelines for treatment of psoriasis with biologic agents require that patients have moderate-to-severe disease (i.e., a Psoriasis Area and Severity Index > 10, affected body surface area > 10%, or Dermatology Life Quality Index score > 10). Furthermore patients must have not responded to, have a contraindication to, or have unacceptable effects to conventional systemic antipsoriatic therapy, and thereby the patients often have had severe psoriasis for years before they start biological treatment. Thus, biological agents are used only for a relatively small subset of patients.

Nevertheless, we cannot refute that such agents may have attenuated the association between severe psoriasis and OSA, and that the true association might be even higher. Indeed, treatment with biological agents have been shown to reduce progression of coronary artery disease<sup>3</sup> (another inflammatory condition), and treatment with tumor necrosis factor- $\alpha$  inhibitors improve symptoms of OSA,<sup>4</sup> suggesting that such biologics may have therapeutic implications beyond their respective product labels. However, such a hypothesis should be

examined in a prospective randomized controlled trial rather than using retrospective observational registry data.

#### **CITATION**

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# SUBMISSION & CORRESPONDENCE INFORMATION

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# **DISCLOSURE STATEMENT**

The authors have indicated no financial conflicts of interest.