



COMMENT ON GRIMALDI ET AL.

Association of Obstructive Sleep Apnea in Rapid Eye Movement Sleep With Reduced Glycemic Control in Type 2 Diabetes: Therapeutic Implications. *Diabetes Care* 2014;37:355–363

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We read with great interest the article by Grimaldi et al. (1) focusing on how rapid eye movement (REM) sleep deprivation due to obstructive sleep apnea affects glycemic control in type 2 diabetes. The study meritoriously investigates the effect of continuous positive airway pressure (CPAP) on HbA_{1c} levels. However, selected limitations deserve to be cited. Indeed, the authors aimed at determining the metabolic effect of reversing apneas by calculating the mean profiles of cumulative minutes of REM and non-REM (NREM) sleep over 8 h of total recording time and estimating mean percentages of REM and NREM sleep left untreated after 4, 6, and 7 h of optimal CPAP treatment.

This method is original and intriguing, but it is based on some debatable assumptions. In at least two studies (one of which has been cited in the article by Grimaldi et al.), the effect of a 3-month CPAP trial on insulin sensitivity and glycemic control has not been associated with beneficial effects (2,3). Unfortunately, these studies were conducted on small samples and did not verify whether poor adherence to CPAP could have affected this result (the

mean nightly CPAP use in the study was only 3.6 h). This last limitation is partly replicated in the study by Grimaldi et al. Indeed, CPAP can reverse a variable proportion, but not the totality of apneic events. It would be of interest to verify whether metabolic effects change as a function of the quality of CPAP results (4). Furthermore, the time lag between starting CPAP and observing a reduction in HbA_{1c} is unclear. Three months are a likely, yet unproved, time lag (5). Finally, the assumption that patients always use the CPAP at the beginning of the night and tend to remove it after few hours is not necessarily correct. We are aware of many patients who did not use CPAP, woke up in the middle of the night with respiratory discomfort and/or nocturia, and then decided to start CPAP before falling asleep again (6).

In conclusion, we believe that the conclusions of Grimaldi et al. (1) should be considered merely provisional and are worthy of confirmation in a real-life dimension.

Duality of Interest. No potential conflicts of interest relevant to this article were reported.

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