

LETTERS TO THE EDITOR

Concurrent mild increases in erythrocyte measures and obstructive sleep apnea in women after 50 years old

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We read with great interest the article by Li et al.¹ Through an investigation of 976 patients (38% women) with primary snoring and obstructive sleep apnea (OSA), Li et al reported that more severe OSA measures were independently associated with a higher red blood cell count, hemoglobin, and hematocrit in women but not in men. The authors showed that the values of the red blood cell count ($10^{12}/L$) from 4 patient groups (patients with primary snoring and patients with mild, moderate, and severe OSA) were 4.44 ± 0.37 , 4.47 ± 0.38 , 4.55 ± 0.39 , and 4.68 ± 0.49 , respectively; similar increased patterns were also observed in the measures of hemoglobin and hematocrit across the 4 groups. However, a similar increment of mean age (years) across the 4 groups was also significantly different in women (40.4, 48.9, 51.9, and 55.6 years), whereas this age difference was not so prominent in men (40.2, 43.4, 47.4, and 46.3 years). This discrepancy of age between women and men well represented the age characteristic of when OSA prevalence and severity were considered, which has been consistently observed in both hospital and community-based studies.²

We were puzzled when we carefully compared the mean values of erythrocyte measures and ages across different groups in Li et al¹ to those in a previous study by Qiao et al.³ Those authors measured complete blood count in 1,259 Han individuals (584 male and 675 female), intending to define common reference intervals and explore their age- and sex-related complete blood count trends. By dividing their population into 6 groups according to age (every 10 years as an interval from age 20 years to older than age 70 years) and separating by male and female, they showed that women had increased patterns of the 3 measures of hemoglobin, red blood cell count, and hematocrit in the two age groups older than age 50 years when compared to the two age groups younger than age 50 years. For example, the mean red blood cell count values were 4.53, 4.47, 4.59, and 4.58 for ages 30–39, 40–49, 50–59, and 60–70 years in women, respectively. In contrast, men displayed overall decreases in those measures across different groups as age increases.

It is important to consider whether OSA causes secondary polycythemia in this field.^{4–6} Through the values in erythrocyte measures and age shown in the 2 studies,^{1,3} it is obvious that older age in the severe OSA group may be an important factor in

women having greater erythrocyte measure changes. We are confident that the authors used an appropriate statistical method of multiple regression models to obtain this clear message, although the differences in mean values were quite small across different groups. However, both the prevalence and severity of OSA and erythrocyte concordantly increased during this age group in women. Consistent with the clear conclusion that OSA (older than 50 years old) does not induce an erythrocyte increase with clinical significance,⁷ the increased values in those measures that Li et al¹ obtained in women were very mild and were within normal ranges. Therefore, as the first evidence suggesting that women with severe OSA have specific increments of erythrocytes, the previous study carried out by Li et al¹ may require further clarification. If it does not address these characteristics at this age stage for both changes in erythrocyte levels and OSA severity, then the article may simply mislead readers.

CITATION

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