

Re: The Effect of Change in Posture on Spirometry in Patients with Obstructive Sleep Apnoea Syndrome

رد: تأثير تغير وضعية الجسد على قياس التنفس عند مرضى متلازمة انقطاع النفس الانسدادي النومي

Dear Editor,

I read with great interest the original study by Al Lawati *et al.* published in the November 2019 issue of SQUMJ.¹ Among a cohort of Omani obstructive sleep apnoea syndrome patients, the authors nicely compared spirometry parameters between obese and non-obese patients when patients changed position from sitting to supine.¹ They found a significant difference in the forced expiratory volume in 1 second/forced vital capacity (FVC) in obese and non-obese patients when changing position ($P = 0.03$). Moreover, there was a significant gender difference in FVC percentages ($P < 0.05$) whereby male patients had a decreased FVC compared to females. Considering the remaining spirometry elements, there was no significant difference with patients' change of position.¹ I assume that the study's results must be taken cautiously as, in addition to the limitations addressed by the authors, there is an additional relevant methodological limitation. The evaluation of lung function in a given population is usually done by examination of the absolute values of various spirometry components, comparing them with the predicted values and ultimately, checking the shape of the resultant curves. This requires the employment of population-specific reference values.² Normal pulmonary function is controlled by genetic, physiological, environmental, psychological, nutritional, socioeconomic and racial determinants.² Consequently, many population-specific reference values of spirometry have been formulated to be used in clinical settings and research institutions.^{3,4} Interestingly, Omani population-specific prediction equations for reference values of spirometry have already been established.⁵ However, the authors did not clearly state which reference values they used in their study methodology to analyse the readings of various spirometry parameters. Consequently, this may bring into question the results of the study.

Mahmood D. Al-Mendalawi

Department of Paediatrics, Al-Kindy College of Medicine, University of Baghdad, Baghdad, Iraq
E-mail: mdalmendalawi@yahoo.com

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Response from the Authors

Dear Reader,

Thank you for your interest and we very much appreciate your comments on our recently published original study.¹ We would like to highlight that this is the first study to explore the changes in spirometry parameters when changing from sitting to supine position in patients with moderate and severe obstructive sleep apnoea syndrome

(OSAS). While earlier studies have examined spirometry characteristics in OSAS patients, there has been no mention of posture changes.^{2,3} Other studies used different methodologies and most measured spirometry only in one position.³ However, we used both the absolute values and the percentages of each parameter of spirometry when comparing obese and non-obese OSAS patients as well as age and gender differences. The study aimed to analyse the changes resulting from a change in posture; it was not intended to compare OSAS patients with healthy subjects and therefore local reference values were not used in the study. The novel results from our study showed that obesity plays a major role in spirometry changes while changing posture rather than OSAS; this could lead to the development of obesity hypoventilation in obese OSAS patients.⁴

Additionally, international standards of spirometry indices were used as a reference only.⁵ While local reference values have already been determined in healthy subjects, there are no reference values for OSAS patients.⁶ As you mentioned, we stated in the limitations of the study that OSAS patients were not compared with non-OSAS subjects. Finally, our results showed that obesity has a significant impact on spirometry while changing position; gender and age do not have an effect in OSAS patients only.^{1,7}

***Mohammed Al-Abri,¹ Redha Al-Lawati,² Mohan Dikshit³**

¹Department of Clinical Physiology, College of Medicine & Health Sciences, Sultan Qaboos University, Muscat, Oman; ²Oman Medical Specialty Board, Muscat, Oman; ³Formerly Department of Physiology, College of Medicine & Health Sciences, Sultan Qaboos University, Muscat, Oman

*Corresponding Author's e-mail: malabri@squ.edu.om

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