Author’s response to reviews

Title: Effects of sex hormones on bronchial reactivity during the menstrual cycle

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Perimenstrual asthma (PMA) is defined as the exacerbation of the respiratory symptoms in some asthmatic premenopausal females during the premenstrual phase of their menstrual cycle and/or the first days of menstruation. Therefore, the goal of this project was to study the effect of the menstrual cycle, specifically of the luteal and follicular phases and sex hormone levels, on bronchial reactivity (BR) in a group of PMA women. In particular, sex hormone levels and mediators of bronchial smooth muscle contraction were evaluated. Our study showed that about 70% of the asthmatic women had increased BR in the follicular phase of menstrual cycle with a significant correlation between BR and serum testosterone levels. Moreover, marked increases in sputum testosterone levels together with significant increases in sputum cAMP concentrations were observed during the luteal phase of PMA patients, suggesting that testosterone contributes to the pathophysiology of PMA. In conclusion, our data show that BR was increased in the follicular phase of the menstrual cycle in women and associated with lower cAMP levels in sputum samples which may contribute to bronchoconstriction. Our results also suggested a link between PMA and testosterone levels. However, whether these findings are of clinical significance in terms of the management of asthma or asthma exacerbations during the menstrual cycle needs further investigation. We are pleased to present this manuscript to be considered for publication in BMC Pulmonary Medicine, because it represents an important contribution to a possible treatment of asthma.