

## Sex-related differences in inflammatory markers and metabolome in ovalbumin-induced model of allergic asthma

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Considering sex-related differences in asthma, several inflammatory markers and plasma metabolome were evaluated in ovalbumin (OVA)-sensitized male and female guinea pigs vs healthy controls. After 14 or 21-days of OVA-sensitization, animals were euthanized. Total and differential white blood cell (WBC) counts were measured. Wet-dry weight ratio (WDR) was estimated from the right lung. Left lung was saline-lavaged and total and differential cell counts in bronchoalveolar lavage fluid (BALF) were determined. Blood plasma metabolome was analyzed by hydrogen-1 nuclear magnetic resonance (<sup>1</sup>H NMR) spectroscopy. OVA-sensitization (especially the 21-day one) increased WDR, total cells, eosinophils and neutrophils in the BALF and elevated total WBC count and blood eosinophils more obviously in females. Similarly, the 21 day-lasting OVA-sensitization led to more significant metabolomic changes in the plasma than the 14 day-lasting OVA-sensitization. Moreover, whereas OVA-sensitization caused significant changes in 2 or 3 metabolites in males after 14- or 21-day OVA-sensitization, respectively, in females the changes in 4 or 7 metabolites after 14- or 21-day OVA-sensitization, respectively, were detected. Finding of sex differences in inflammatory markers and plasma metabolites in OVA-sensitized animals may suggest a contribution of sex to distinct clinical picture in male and female asthma patients.

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