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Poster Sessions

Development of a steroid-resistant asthma model of mouse, and possible involvement of neutrophils in the pathogenesis

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Glucocorticoids have been extensively used for asthma therapy, whereas 5-10% of asthma patients are resistant to inhaled or oral glucocorticoids. Mechanisms underlying "steroid-resistant asthma" have been unclear. We aimed to develop a murine model for steroid-resistant asthma, and elucidated the mechanisms. Ovalbumin (OVA)-sensitized mice were intratracheally challenged with 0.02% or 2% OVA for 4 times. Dexamethasone was daily i.p. administered during the challenge period. Bronchoalveolar lavage and measurement of airway hyperresponsiveness (AHR) to methacholine were conducted after the 4th challenge. AHR and eosinophilia were induced in both 0.02% and 2% OVA-induced models with almost similar degree to each other. AHR and eosinophilia induced by 0.02% OVA were sensitive to dexamethasone, whereas those by 2% OVA were resistant to it. Interestingly, airway neutrophilia was also induced in both models, but the neutrophilia in 2% OVA model was more obvious than that of 0.02% OVA model. MIP-2, a murine IL-8 homologue was markedly increased in 2% OVA model. In conclusion, a steroid-resistant asthma model was successfully developed. Neutrophilic airway inflammation induced by MIP-2 may be involved in the pathogenesis.