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Title: CD39/CD73/A2AR pathway may involve in the occurrence allergic asthma

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Body: Objective The ecto-enzyme CD39 and CD73 can successively hydrolyze extracellular ATP which has pro-inflammatory effects into AMP and adenosine. Accordingly, CD39 exerts its anti-inflammatory effects by removal extracellular ATP. Moreover, the produced adenosine can inhibit the activation and functions of effector T cells by combining to adenosine receptor A2A (A2AR). But CD39, CD73 and A2AR expression in patients with allergic asthma remains unknown. Methods Eighteen patients with persistent asthma allergic to house dust mites and nineteen healthy volunteers were enrolled.The expression of CD39, CD73, A2AR mRNA in PBMC were determined by SYRB Green I Real-time PCR. DP.sIgE(Dermatophagoides pteronyssinus specific immunoglobulin E) was detected by ELISA. Results Our data showed that the expression of CD39 mRNA in patients with asthma was significantly lower than that in normal controls ($1.49\pm0.59\times10^{-3}$ vs $2.17\pm0.77\times10^{-3}$, $P<0.01$). CD73 mRNA was higher than that in normal controls, but there was no significant difference ($1.17\pm0.50\times10^{-3}$ vs $1.03\pm0.39\times10^{-3}$, $P>0.05$). The expression of A2AR mRNA in patients with asthma was significantly higher than that in normal controls ($0.45\pm0.29\times10^{-3}$ vs $0.21\pm0.06\times10^{-3}$, $P<0.01$). Conclusions The signal pathway of CD39/CD73/A2AR may participate in the occurrence of allergic asthma.