Effects of Salmeterol Xinafoate and Fluticasone Propionate on Immunological Activation of Human Cultured Mast Cells

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Background: The clinical efficacy of combination therapy comprising a long acting β2-agonist (LABA) and corticosteroid is widely recognized for the treatment of adult asthma. Here we examine the effect of salmeterol xinafoate (SX) and fluticasone propionate (FP) alone and in combination on the immunological activation of human cultured mast cells (HCMC)in vitro.

Methods: HCMC were passively sensitized with IgE antibody and then activated by challenging with anti-IgE antibody. The effect of drugs on the activation of mast cells was examined by measuring the amount of released chemical mediators (histamine, leukotrienes (LT) and prostaglandin D2 (PGD2)) and granulocyte macrophage colony stimulating factor (GM-CSF).

Results: The release of each chemical mediator was inhibited by 10-9—10-8M SX but not by 10-10—10-7M FP. The production of GM-CSF was inhibited by a concentration of 10-8M in both drugs and the inhibition was augmented by combined treatment with 10-11M of each drug.

Conclusions: The immunological release of chemical mediators (histamine, LT, PGD2) from HCMC was inhibited by SX but not by FP. SX and FP inhibited the production of GM-CSF by HCMC and both drug showed synergistic inhibition in the production of GM-CSF.

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