Clinical and Translational Allergy

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MP29-02* reduces eosinophil survival induced by epithelial cell secretions from nasal mucosa

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Background

Recently, MP29-02* (a novel intranasal formulation of azelastine hydrochloride [AZ] and fluticasone propionate [FP]) has demonstrated significant clinical effects in AR compared to these drugs in monotherapy. The aim of this study was to investigate the anti-inflammatory effect of MP29-02* compared to AZ and FP alone in an in vitro validated model of eosinophilic inflammation.

Methods

Peripheral blood eosinophils were incubated for 4 days with decreasing dilutions of MP29-02* (from $1:10^2$ to $1:10^5$ times), equivalent dilutions of FP ($7.3x10^{-6}$M to 10^{-9}M) or AZ ($2.4x10^{-5}$M to 10^{-8}M) prior to the addition of Epithelial Cell culture Media (ECM) from nasal mucosa (NM). Eosinophil survival was assessed by Trypan blue dye exclusion. Results are expressed as percentage (mean ± SEM) of eosinophil survival compared to control (100%).

Results

ECM from NM at 10% induced eosinophil survival from day 1 to 4. This effect was inhibited in a dose-response manner by MP29-02* and FP alone (from day 2 to 4) and AZ alone (only at day 4). At day 3, MP29-02* significantly inhibited eosinophil survival induced by ECM from dilution $1:10^2$ (13.8±1.5%, N=6) to dilution $1:10^5$ (58.8±10.8%, N=6), compared to ECM (100%). This inhibitory effect on eosinophil survival induced by MP29-02* at $1:10^2$ dilution (13.8±1.5%) was significantly ($p<0.05$) stronger than that induced by FP alone (36.7±6.3) or AZ alone (70.3±10.4%) at similar dilutions.

Conclusions

These results suggest that MP29-02* may reduce upper airway eosinophilic infiltration more potently than corticosteroids or antihistamines administered alone. This anti-inflammatory effect may account, at least in part, for the stronger clinical effect of MP29-02* on moderate to severe allergic rhinitis when compared to these drugs in monotherapy.

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