

MEETING ABSTRACT

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In vitro performances of a valved holding chamber with inhaled corticosteroids

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Background

In young children with asthma, it is recommended to use pressurised metered dose inhaler (PMDI) with a valved holding chamber (VHC). The objective of this study was to evaluate the performances of a VHC with inhaled corticosteroids.

Methods

In this study, the VHC called Tipshaler (Protec'som, France) was evaluated with fluticasone (Flixotide[®], 50µg/dose, GSK, France) and beclomethasone (QVAR[®], 100µg/dose, MEDICIS, Canada). The method according to the European Pharmacopoeia used a constant flow rate (30 L / min) was used. Particle size distribution was measured using a NGI cascade impactor (Copley Scientific, Nottingham, United Kingdom). The fluticasone and beclomethasone concentrations were assayed by spectrophotometry at 236 nm and 239 nm respectively.

Results

In the trachea, the mass of fluticasone was higher with pMDI alone in comparison with VHC ($20 \pm 0,6 \mu\text{g}$ vs $0,9 \pm 0,3 \mu\text{g}$, $p < 0,05$). The fine particle dose of fluticasone was similar with pMDI alone compared to VHC ($26 \pm 2 \mu\text{g}$ vs $24 \pm 1 \mu\text{g}$). Concerning beclomethasone, in the trachea the mass of drugs was higher with pMDI alone in comparison with VHC ($11,6 \pm 0,4$ vs $1,2 \pm 0,2$, $p < 0,05$). In addition, deposition of fine particles of beclomethasone was similar with pMDI alone in comparison with VHC ($77 \pm 1 \mu\text{g}$ vs $75 \pm 1 \mu\text{g}$, $p < 0,05$).

Conclusions

The use of valved holding chamber reduces the deposition of particles of inhaled corticosteroids in the trachea and allows efficient lung deposition of drugs.

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