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Effects of Local Decongestive Agents at Trachea and Lungs

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Abstract : Purpose: There is little histologic data concerning effects of nasal decongestants on the respiratory tract. We aimed to put forth the effects of nasal decongestants on the trachea and lower airways of rats. Materials and Methods: Four to six months old 60 male rats were randomly categorized into 6 groups. Experimental drugs were applied to the same nostril of rats twice daily for 8 weeks (Xylometazolin, Benzalkolyum, EDTA, Sorbitol and combined drug solutions). We applied normal saline solution (NaCl %0.9) for the control group. In the end, trachea and both lungs were dissected and kept in formaldehyde for histopathologic evaluation. Results: Inflammation and bronchial edema were most common findings. While all rats in sorbitol group had increased numbers of type 2 pneumocytes; 80% of BAC group had increased numbers of type 2 pneumocytes. Spillover of tracheal epithelium was seen mostly in sorbitol, EDTA and combined drug groups (60%, 87.5%, 50% respectively). Bronchial smooth muscle hypertrophy was seen mostly in BAC and EDTA group (70%, 62.5% respectively). The number of goblet cells showed the significant difference between control-combined drug (p=0.025) and control-BAC (p=0.001) groups. Conclusions: Nasal decongestants can cause permanent changes at lower respiratory tract in addition to changes in upper respiratory tract.

Keywords : decongestive agents, xylometazoline, lung, trachea
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