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OROPHARYNGEAL COMPLICATIONS IN ASTHMATICS USING METERED-DOSE INHALERS (MDIS) VERSUS DRY POWDER INHALERS (DPIS)

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Asthma is a chronic inflammatory airway disease commonly treated with inhaled corticosteroids (ICS), delivered mainly through metered-dose inhalers (MDIs) and dry powder inhalers (DPIs). Although ICS are highly effective in controlling airway inflammation and reducing exacerbations, their local deposition in the oropharynx may lead to complications that affect adherence, comfort, and quality of life. These abstract reviews the main oropharyngeal complications associated with MDI and DPI use in asthmatic patients and compares the relative risk between these two delivery systems. The most frequently reported complications are oral candidiasis, dysphonia, pharyngitis, throat irritation, and hoarseness. A meta-analysis of randomized controlled trials found that ICS delivered by MDI were associated with a higher risk of oral candidiasis and dysphonia than ICS delivered by DPI, with odds ratios for oral candidiasis of 5.40 for MDI and 3.24 for DPI, and for dysphonia of 5.68 for MDI and 3.74 for DPI, compared with placebo. Observational studies also show that adult asthmatics using ICS frequently report throat symptoms, voice changes, and laryngeal discomfort.

The higher rate of complications with MDIs is likely related to greater oropharyngeal deposition when inhaler technique is suboptimal, especially without spacer use. DPIs may reduce some local adverse effects, but they do not eliminate them. Current asthma guidance recommends preventive strategies such as correct inhaler technique, rinsing the mouth and spitting after ICS use, and using a spacer with pressurized MDIs to reduce local side effects. Recent research also suggests that inhaler device type may influence the oral microbiome, which could partly explain differences in local adverse effects between MDIs and DPIs.

The clinical importance of these complications extends beyond local discomfort, as they may negatively influence treatment adherence and overall asthma control. Patients who experience recurrent oral thrush, persistent hoarseness, or throat irritation may be more likely to use their inhalers incorrectly, reduce the prescribed dose, or discontinue therapy without medical advice. This highlights the need for regular follow-up, including assessment of inhaler technique and screening for early oropharyngeal adverse effects. Early recognition and preventive education can help clinicians maintain the benefits of inhaled corticosteroid therapy while minimizing complications associated with long-term inhaler use.

In addition, the occurrence of oropharyngeal complications may be influenced by several patient- and treatment-related factors, including the corticosteroid dose, duration of therapy, frequency of inhaler use, age, oral hygiene, and underlying susceptibility to fungal infection or mucosal irritation. Improper inhalation technique can further increase medication deposition in the mouth and throat, thereby raising the likelihood of local adverse effects. Therefore, individualized patient counseling and routine monitoring are essential to identify those at higher risk and to optimize inhaler use according to the patient's clinical condition and ability to handle the device.

In conclusion, both MDIs and DPIs can cause oropharyngeal complications in asthmatic patients using ICS, but evidence suggests that MDIs are associated with a greater burden of local adverse effects. Careful device selection, patient education, spacer use, and post-inhalation mouth rinsing are important measures to improve safety and treatment adherence.