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BRIEF ANSWERS TO SPECIFIC CLINICAL QUESTIONS

# Q: Should we still be using theophylline to treat asthma?

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**A:** ALMOST ALL PATIENTS with asthma can be appropriately managed without theophylline because better alternatives are now available. This is true for all classes of severity as defined in the 1997 asthma guidelines.[1]

The 1997 guidelines continue to list sustained-release theophylline as an alternative therapy for mild, persistent asthma and as add-on therapy for moderate and severe persistent asthma.[1]

But during the past decade, with the increased emphasis on inhaled corticosteroids and the development of long-acting inhaled beta agonists and leukotriene modifiers, theophylline has been relegated to the status of a fourth-line drug for the management of bronchial asthma.[2]

Recent understanding strongly indicates that asthma is a chronic inflammatory disorder of the airways, and the thrust of chronic maintenance therapy is anti-inflammatory therapy with the addition of bronchodilators as needed. This typically implies inhaled corticosteroids for maintenance therapy. During bouts of acute, severe asthma refractory to aerosolized bronchodilators, the preferred therapy is systemic corticosteroids.

## PROS AND CONS OF THEOPHYLLINE

Theophylline has been supplanted by the other classes of medication because it:

- Has relatively weak bronchodilating properties
- Has no clinically important anti-inflammatory properties
- Is difficult to use because of its numerous drug interactions, the need to monitor serum levels, and its low therapeutic-to-toxicity ratio.

The particular advantages with theophylline are that it is available in a pill form, which may possibly improve compliance (as opposed to an inhaler which requires attention to proper education and technique); it is relatively inexpensive; it is long-acting and could be beneficial overnight; and it does have anti-asthma properties.

## NEWER, BETTER ALTERNATIVES FOR ASTHMA TREATMENT

However, these benefits have largely been circumvented by improvements in other drugs. For example, leukotriene modifiers (montelukast, zafirlukast, zileuton) are available in pill form and can be taken once or twice per day. A long-acting beta agonist (salmeterol) can be taken twice a day and is useful for nocturnal asthma. Salmeterol is also available as a dry powder inhaler (Diskus), which does not require a spacer device; the dosage is one puff twice a day.

A salmeterol-fluticasone combination for the Diskus inhaler has recently become available and will simplify therapy for most patients with asthma.

**Theophylline has become a fourth-line drug**

## REFERENCES

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2. **Weinberger M, Hendeles L.** Theophylline in asthma. N Engl J Med 1996; 334:1380–1388.

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