

Correspondence

Reply

To the Editor:

I am grateful to Dr Caviglia¹ for pointing out the typographical errors on page 684 of my article.² The wording “ α -adrenergic” should have been “ β -adrenergic.” I apologize to our readers for the error.

Dr Caviglia brings up additional very important points about β -adrenergic receptor function in the treatment of asthma. There is little doubt that overdosage with β -agonists is cardiotoxic. My first encounter with this problem was in the 1970s when 4 young women with severe acute asthma were admitted to our hospital carrying an empty container of aerosol isoproterenol. Their electrocardiograms showed extensive myocardial necrosis. The current controversy is whether the usual therapeutic doses of long-acting β -adrenergic aerosols can be cardiotoxic, particularly in elderly patients with heart disease. This toxicity is not so much myocardial necrosis as ventricular tachycardia. Like all other decisions about management of asthma in elderly patients, especially where the evidence is skimpy, this decision must be based on the individual patient's condition.

In regard to long-acting β -adrenergic aerosols, their effect is not limited to bronchial and cardiac muscle. Epithelial cells, mucus glands, lymphocytes, mast cells, and eosinophils all have

β -adrenergic receptors, and β -agonists affect their function in ways that are beneficial for asthma by reducing mucus secretion, inflammation, and airway remodeling. Administration of β -adrenergic agonists downregulates the β -receptor, and there is concern that short-acting β -agonists may actually worsen these beneficial effects because the reduction in the receptor outlasts the short-term stimulation by the drug. However, long-acting β -adrenergic aerosols probably have a substantial benefit beyond bronchodilation. More information is needed. Progress requires hypotheses. Discussion of these additional adrenergic effects is outside the scope of this article but could be the basis of a future review.

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Disclosure of potential conflict of interest: C. E. Reed has declared that he has no conflict of interest.

REFERENCES

1. Caviglia AG. Asthma in the elderly: β -adrenergic receptor blockers may worsen, β -receptor agonists relieve (with caveats). *J Allergy Clin Immunol* XXXX.
2. Reed CH. Asthma in the elderly: diagnosis and management. *J Allergy Clin Immunol* 2010;126:681-7.

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