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Guest editorial

Antilipid agents may provide allergy protection

In this issue of the *Annals*, the authors of the paper “Oral administration with pravastatin and atorvastatin reduces airway hyperresponsiveness and allergic reactions in asthma mice” have shown in a brief study (several weeks) that the statins, which are available for other medical conditions in humans, have a “significant suppressing effect” on a wide number of immune functions in a small number of mice.¹ This study suggests that statin drugs might be beneficial in the treatment of asthma. However, statin therapy is not without the risk of potentially significant side effects. Furthermore, the authors’ study is animal based, making direct application to human disease difficult. Considering a human trial of these medications, or even an analysis of asthma exacerbations on individuals already being treated with statin therapy, would be prudent. In fact, several studies show a very modest effect of adding statins to standard asthma therapy.^{2–5} But at least one study documents no benefit with statin therapy in allergic patients with asthma.⁶

Prevention of illness is the pinnacle of medicine and the primary goal of “allergists” since the turn of the 20th century. Except for crude immunotherapy, prevention limped along even in the 1930s, 1940s, and into the 1950s, despite some exceptional physicians entering the field, probably because they could not explain scientifically what they were observing in their patients. Then in the late 1950s good clinical studies showed that venom, not the vespid’s whole body, caused the systemic reactions, and if a person with such severe systemic responses was gradually exposed subcutaneously to venom, the violence could be transformed into protection. This added another kernel of wisdom, which was that a “part” and not “the whole” stimulated certain bodies to react positively and was a tool to protect.

Keeping in mind that statin therapy has been shown to have significant potential side effects on a number of human organs and functions, they may not be the safest therapy in their present form to use solely as a preventive agent in asthma.⁷ It is one thing to use statins to treat a disease, and another to use it primarily as a preventive treatment. In the current study statins were used as a controller medication and not a preventive treatment for asthma. Furthermore, the overall safety of statins was not addressed, but these drugs did appear to have a large effect on multiple immune functions (immunoglobulin and cytokine levels), suggesting that they could have significant immunomodulatory effects. Obviously,

committing children to statins as a preventive therapy would require significant consideration of these safety concerns.

In a positive light, this study points to another class of agents, which could possibly be added to our armamentarium of agents to control allergic sensitization or asthma. Based on currently available information, these agents lack the necessary demonstration for clinical use focused on the risk–benefit ratio. Because of the known side effects of statins (see Mayo Clinic Staff⁷ for a listing of these), I would be somewhat concerned about the potential utility of these therapies unless or until safety issues are fully addressed or vetted. The use of the greatly improved agents of allergen immunotherapy (considered the Rolls Royce of preventive therapy), inhaled steroids, inhaled steroids/long acting beta-agonists combined, anti-leukotrienes, and anti-immunoglobulin E have great prolonged controller properties with known safety profiles. Nonetheless, this mouse study provides potential insights into the role of lipids and lipid mediators in the development and treatment of asthma, something that has not been well studied in the past.

J. Loren Rosenberg, MD
University of Medicine and Dentistry
New Jersey
jlrmr@verizon.net

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