Adenosine Helps Differentiate Asthma, COPD

One’s response to AMP could help monitor airway inflammation and response to treatment.

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MIAMI BEACH — Measuring airway responsiveness to inhaled adenosine helps discriminate between a diagnosis of asthma and chronic obstructive pulmonary disease. It’s also a valuable clinical tool for monitoring airway inflammation and response to anti-inflammatory treatment in asthma, Dr. Ricardo Polosa reported at the annual meeting of the American Academy of Allergy, Asthma, and Immunology. “AMP challenge is noninvasive, non-time consuming, low cost, has good reproducibility and has good patient acceptability, and safety is optimal,” he said.

Adenosine 5'-monophosphate (AMP) is a proinflammatory mediator that induces bronchoconstriction in patients with inflammatory lung diseases. Response to AMP is determined by measuring the concentration of inhaled AMP causing the forced expiratory volume in 1 second (FEV₁) to decrease by 20%. The exact cut-off point between normal and abnormal responses remains somewhat unclear. But a cutoff of 160 mg/mL has been used successfully to discriminate between asthmatics and healthy controls. AAAAI is considering standardizing, and writing protocols for AMP and other indirect challenges, said session moderator Dr. Richard A. Nicklas, of George Washington University, Washington, D.C. Dr. Polosa and his colleagues at the University of Catania (Italy) have shown that airway responsiveness to inhaled AMP is closely related to the number of eosinophils and the degree of atopy and sensitization, and no association was observed with methacholine, an agent commonly used to assess bronchial hyperresponsiveness (Eur. Respir. J. 2000;15:30-5). Dr. Polosa and others have found that in this group of patients, a clear history of asthma and 10 patients with COPD and comparable fixed airway obstruction. “This tells me very nicely that AMP challenge can be used as a strong discriminator for COPD and asthma,” he said of the unpublished findings.

AMP also allows one to assess the nonsteroidal anti-inflammatory potential of several therapeutic agents including allergen immunotherapy (Clin. Exp. Allergy 2003;33:873-81), the leukotriene receptor antagonist montelukast (Am. J. Respir. Crit. Care Med. 2003;167:1232-8), and the humanized monoclonal anti-IgE antibody omalizumab (Int. Arch. Allergy Immunol. 2006;143:122-31).

AMP may be a more useful and sensitive tool than methacholine and histamine because of its mechanism of action, Dr. Polosa said. Histamine and methacholine have a direct spasmogenic effect on airway smooth muscle cells. AMP acts indirectly via the secondary release of mediators. Inflammatory data from a fatal asthma project, which will match cases of death more common in the elderly, Declining Overall

MIAMI BEACH — Preliminary data from a fatal asthma registry suggest that asthma deaths continue to fall and are more common in the elderly, Dr. Carlos Camargo Jr. said at the annual meeting of the American Academy of Allergy, Asthma, and Immunology.

Dr. Camargo and colleagues at Massachusetts General Hospital, Boston, developed a standard protocol for contacting next of kin that was submitted to institutional review boards in four states: Arkansas, Missouri, Ohio, and Massachusetts. So far they have identified 222 possible asthma fatalities, a much lower number than would have been predicted in the late 1990s when asthma rates were climbing, he said. Estimates vary, but 5,000 asthma deaths occurred annually in the early 1990s compared with about 4,000 today. An analysis of the first 20 deaths in Massachusetts showed that half occurred in patients older than 65 years, almost two-thirds of the 20 fatalities, reported that the patient who died had a history of anxiety or depression in the previous 12 months. Most of the 20 deaths occurred in the hospital, and almost half in patients who had visited an emergency department in the previous 12 months.

There have been some reports in recent years on how deaths are occurring more in the elderly, but I think it’s getting more dramatic,” said Dr. Camargo, chair of the academy’s asthma mortality committee.

The most common triggers of death were allergies or cold weather. Nearly 71% of the 20 patients who died had reported frequent night awakening due to their asthma prior to their deaths, consistent with a more persistent ailment. The study was funded by an unrestricted grant from GlaxoSmithKline.

The finding of increasing asthma deaths in the elderly has sparked efforts to create the Veterans Affairs Fatal Asthma Project, which will match cases of asthma deaths with age-matched controls living with asthma, and which aims to evaluate if health care utilization. Veterans Affairs centers in Ohio, Wisconsin, Massachusetts, and Arizona are enrolled, but Dr. Camargo urged audience members who work in the VA to contact him to broaden participation.

Efforts to create this registry have been hampered by the Health Insurance Portability and Accountability Act and different internal review board protocols. But a standard approach for contact-