

Home Nebulizers Implicated in Asthma Deaths

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SALT LAKE CITY — Misuse of home nebulizers appears to be an important factor in many asthma deaths in children and young adults, Dr. Amit Gupta said at the annual meeting of the American College of Chest Physicians.

His retrospective study of all asthma deaths in 2- to 34-year-olds in Michigan from 2002 to 2004 found that many study subjects who had a home nebulizer weren't using it according to national guidelines.

"The widespread prescription and use of home nebulizers in asthma may lead to an overreliance on bronchodilators and underuse of steroids. This may lead to subsequent delay in seeking medical care during an acute exacerbation, or to poor chronic control of asthma, which may eventually lead to a poor outcome," said Dr. Gupta of



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DR. GUPTA

Michigan State University, East Lansing.

The study focused on 86 asthma deaths in Michigan; 48 of these deaths involved 19- to 34-year-olds. Of the 38 pediatric deaths, all but one occurred in children at least 5 years old. A panel of experts reviewed medical records for the year prior to death as well as death certificate data and the results of next-of-kin interviews obtained in 61 cases.

Surprisingly, 35% of the adult fatalities occurred in people with moderate persistent asthma. Most of the pediatric deaths involved children whose asthma fell into the severe persistent class, Dr. Gupta said.

National Asthma Education and Prevention Program guidelines recommend limiting the use of home nebulizers to acute asthma exacerbations that are monitored with a peak flow meter (PFM). Patients whose symptoms and peak flow readings don't improve after a single use are supposed to seek immediate medical attention. And all patients prescribed a home nebulizer are supposed to have a written asthma action plan to guide them in the event of an acute exacerbation or emergency.

The Michigan investigators found that 52 patients had a home nebulizer, but only 9 had a written asthma action plan—and none used it to monitor their disease. Sixteen percent of children and more than 50% of adults with a nebulizer used it regularly, with frequencies ranging from once per week to six times daily.

Study findings revealed that 38 patients had a PFM, including 29 with a home nebulizer. More than half of children with a PFM used it regularly; none of the adults did. Nineteen individuals used their home nebulizer prior to their fatal asthma attack; only 9 of the 19 did so in conjunction with use of a PFM.

All 52 patients who had a home nebuliz-

er met national guidelines criteria for the use of chronic corticosteroids as asthma control medication, but inhaled or oral steroids were prescribed in only two-thirds of those patients. Moreover, only 11 were using steroids as prescribed, Dr. Gupta said.

The next-of-kin interviews as well as patient behavior suggested home nebulizers had provided the deceased with a false sense of security during acute exacerbations. Moreover, the rapid symptomatic relief obtained with use of the nebulizer led

many patients to use nebulized bronchodilators frequently, resulting in poor chronic control of their respiratory disease—exactly the sort of vicious circle that the national guidelines were designed to prevent.

Asthma morbidity and mortality in the United States remain "unacceptably high," he said. An estimated 4,000 people die each year from asthma. The disease results in 7.5 million preventable sick days annually. In Michigan alone, there are roughly 30,000

hospitalizations for asthma each year.

"The heartbreaking thing is asthma morbidity and mortality are preventable if we properly manage the disease," he said.

He proposed several interventions to increase home nebulizer safety: dispensing the devices only together with a PFM and a written asthma action plan; pharmacist notification to physicians regarding frequent bronchodilator refills; and better patient and physician education about home asthma management. ■



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