

Egg-Allergic Kids May Safely Get Flu Vaccine

BY SHERRY BOSCHERT

FROM THE ANNUAL MEETING OF THE AMERICAN ACADEMY OF ALLERGY, ASTHMA, AND IMMUNOLOGY

SAN FRANCISCO – Influenza vaccine was safely administered to 101 children with severe egg allergy who had negative skin prick test results with the vaccine, a study has shown.

All patients had been strictly avoiding egg in their diet because of allergy confirmed by a history of reaction to egg, skin prick testing, and/or egg-specific IgE. Among 50 children who had a history of systemic reactions to egg, 24 developed urticaria, 22 had a gastroenterologic reaction, and 4 had respiratory reactions. Thirty-one children had a history of eczema after ingesting egg, and 20 had no history of ingestion at the time of diagnosis.

All underwent skin prick testing with the full-strength

influenza vaccine along with saline and histamine controls. The tests used vaccine for seasonal or novel H1N1 influenza virus or both.

The vaccines came from three different manufacturers, with the majority from a manufacturer who had been known to produce several vaccine lots with ovalbumin content greater than 1.2 mcg/mL, Dr. Stephen R. Boden said in a poster presentation at the meeting.

None of the children developed a wheal at the vaccine skin prick site that was at least 3 mm larger than the wheal from the saline control, so all had negative skin prick test results, said Dr. Boden, an allergy fellow at Duke University, Durham, N.C. Tests were

considered valid with at least a 3-mm wheal from the histamine control.

All patients then were given the full, age-appropriate vaccine dose in one injection and were

observed in the clinic for 30 minutes. Two reactions were reported 24 hours after vaccination. One patient had a large local reaction, and another developed cellulitis at the injection site. There were no systemic reactions.

Patients who had tolerated vaccination were told to get booster doses from their primary care physicians, but could get the booster doses in the university's allergy/immunology clinic if they preferred. In all, the children received 211 vaccine doses, Dr. Boden reported.

The mean age of the cohort was 4 years (range, 7 months to 18 years). Wheals from egg skin prick testing averaged 9 mm in diameter (range, 1-28 mm). The mean egg-specific IgE level was 21 kU/L, with a range of less

than 0.35 to more than 100 kU/L.

The Centers for Disease Control and Prevention recommend yearly influenza vaccination for all children older than 6 months. Current recommendations from the American Academy of Pediatrics say that children with severe egg allergy generally should not be given influenza vaccine because of the risk of reaction and other reasons, Dr. Boden said. Published schedules for giving influenza vaccine to some severely egg-allergic patients recommend skin prick testing, intradermal testing, and graded vaccine injection (J. Pediatr. 1985;106:931-3).

Had any of the patients in the current study had a positive skin prick test result, the patient would have received the vaccine split into 10% of the age-appropriate dose in the first injection followed 30 minutes later by the remaining 90% of the dose. ■

VITALS

Major Finding: After testing negative to skin prick tests with influenza vaccine, the children were given the full, age-appropriate vaccine dose in one injection. One patient had a large local reaction, and another developed cellulitis at the injection site. There were no systemic reactions.

Data Source: Prospective case series of 101 patients followed at Duke University's allergy/immunology clinic.

Disclosures: Dr. Boden said he had no relevant financial disclosures. Dr. Boden is sponsored by the U.S. Air Force. The views expressed are his and do not necessarily reflect the official policy of the Air Force, the Department of Defense, or the U.S. government.

Flu Admissions Longer in Kids Exposed to Cigarette Smoke

BY DOUG BRUNK

FROM THE ANNUAL MEETING OF THE PEDIATRIC ACADEMIC SOCIETIES

DENVER – Children exposed to secondhand tobacco smoke who are admitted to the hospital for influenza are more likely to require admission to the intensive care unit and have a longer hospital stay than their peers who are not exposed to secondhand smoke.

These effects are even greater for children with chronic illnesses who are exposed to secondhand smoke, Dr. Karen M. Wilson reported.

An estimated 18% of children aged 3-11 years are regularly exposed to secondhand tobacco smoke inside the home, said Dr. Wilson, assistant professor of pediatrics at the University of Rochester (N.Y.).

Although secondhand smoke exposure is associated with worse outcomes for children's illnesses, including respiratory syncytial virus and asthma, "the effect of secondhand smoke exposure on influenza severity in children is unclear," she noted. "More than 40% of preschool children experience influenza at some point. In adults, tobacco smoke increases the risk of influenza infection and the risk of complications."

To determine if children hospitalized with influenza who are exposed to secondhand smoke have more severe illness, Dr. Wilson and her associates conducted a review of 169 medical charts at Golisano Children's Hospital in Rochester. They generated a list of patients aged 0-15 years with a discharge diagnosis of influenza between 2002 and 2009. The influenza diagnosis was verified by laboratory review.

Measures of severity included intensive care unit admission, defined as admission or transfer to the ICU at any time during the stay; need for mechanical ventilation, defined as any documentation of endotracheal intubation during the stay; and length of stay.

Exposure to secondhand smoke was assessed by any documentation of presence or absence of secondhand smoke exposure by any provider. "Any documentation of exposure was considered exposed; documentation of no exposure was considered not exposed," Dr. Wilson said.

She reported findings

from 113 children who were included in the final analysis. Of these, 46 (41%) were exposed to secondhand smoke and 67 (59%) were not. The average age of the 113 children was 4 years, and 50% were male. Of the 113 children, 58% were white, 22% were black, 8% were Hispanic, and 3.5% were Asian; race/ethnicity



'Children exposed to secondhand smoke should be a priority group for influenza immunization.'

DR. WILSON

was unknown in the remaining 8.5%. Fewer than half of the children (44%) had public health insurance. More than three-quarters of the children (78%) had influenza A. In addition, 25% had asthma, 25% had an underlying chronic condition, 14% had documentation of prematurity, 19% required ICU care, and 6% required mechanical ventilation.

None of the potential covariates – including asthma, prematurity, and chronic conditions – were significantly associated with secondhand smoke exposure. However, children exposed to secondhand smoke were significantly more likely to require ICU admission (31% vs. 10% for children with no exposure) and mechanical ventilation (13% vs. 2%, respectively).

The mean length of stay was 2.1 days for children who had no chronic condition or exposure to secondhand smoke, 2.5 days for children who had no chronic condition but had exposure to secondhand smoke, 3.5 days for children who had a

chronic condition but no exposure to secondhand smoke, and 11 days for children who had a chronic condition and were exposed to secondhand smoke.

In a logistic regression model controlling for age, gender, race, and type of insurance, exposure to secondhand smoke was significantly associated with ICU admission but chronic conditions were not.

In a logistic regression model limited to exposure to secondhand smoke and chronic conditions, chronic conditions were associated with the need for mechanical ventilation but exposure to secondhand smoke was not.

Dr. Wilson acknowledged certain limitations of the study, including its single-center design "and the potential for errors in documentation and abstraction," she said. "The exposure measure was reliant on provider documentation ... but provider documentation is more likely to underestimate secondhand smoke exposure in children, so we probably misclassified some children as being non-smoke exposed."

In addition, "there may be other covariates that we were not able to measure because we don't have documentation in the chart," she said.

Despite such limitations, Dr. Wilson said that the findings support the notion of considering secondhand smoke exposure in risk stratification for children admitted with influenza. "Greater efforts are needed to help parents eliminate their children's exposure to secondhand smoke," she said. "Parents of children with chronic illness should be aware of the risk of secondhand smoke exposure, and children exposed to secondhand smoke should be a priority group for influenza immunization." ■

VITALS

Major Finding: During their hospital stay for influenza, children previously exposed to secondhand smoke were significantly more likely to require ICU admission (31% vs. 10% for children with no exposure) and mechanical ventilation (13% vs. 2%, respectively).

Data Source: A chart review of 113 patients aged 0-15 years discharged from Golisano Children's Hospital in Rochester, N.Y., with a diagnosis of influenza between 2002 and 2009.

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