

# Asthma, Antibiotics Linked in Food-Allergic Kids

BY KERRI WACHTER

WASHINGTON — Pneumonia, sinus infections, and antibiotic use in a child's first year of life were independently associated with asthma in a study of more than 1,000 children with food allergies.

Children with a history of antibiotic use in the first year of life had an almost twofold increased risk of asthma (odds ratio, 1.8), after adjustment for age, sex,

household income, maternal education, breastfeeding, mode of delivery, family atopy, and intrafamilial correlations. Even after adjustment for antibiotic use, pneumonia and sinus infection in early life were significantly associated with an increased risk of asthma (OR, 2.2 and 2.0), Angela Schroeder and her coinvestigators reported in a poster presented at the annual meeting of the American Academy of Allergy, Asthma, and Immunology.

The study involved 1,105 children enrolled in an ongoing family-based food-allergy study in Chicago. The researchers used a questionnaire-based interview to obtain information about food allergies and medical histories of each family member.

A clinical evaluation—including measures of height, weight, and blood pressure and a skin prick test—was performed on each participating family

member. Venous blood samples also were taken. In addition, ICD-9 codes were collected for children who received care in the allergy and immunology clinic at Children's Memorial Hospital, Chicago; those were compared with parental report of physician diagnosis in the child's first year.

The investigators determined antibiotic use in early life by questionnaire-based interviews and defined it by parental report of physician-prescribed antibiotics in their child's first year of life. They also assessed early infections by questionnaire-based interviews for otitis media, pneumonia, skin infection, urinary tract infection, parasite infection, bone infection, meningitis, bacteremia/sepsis, and sinus infection.

**Children with a history of antibiotic use in the first year of life had an almost doubled risk of asthma (odds ratio, 1.8), after adjustment for age, sex, and other variables.**

The researchers defined asthma as parental report of physician diagnosis and being symptomatic in the year prior to the survey, as determined by interview. They determined the earliest age of reported asthma symptoms.

In all, 30% of children had asthma. Half of children with asthma had otitis media in the first year of life, compared with 40% of children without asthma. Likewise, 7% of children with asthma had pneumonia and 9% had sinus infection, compared with 2% and 4% of children without asthma.

More than two-thirds of children with asthma (68%) had used antibiotics in the first year of life, compared with 54% of children without asthma.

All of the differences were statistically significant.

Ms. Schroeder, who is a research associate at Children's Memorial Hospital, reported that she has no relevant financial relationships. ■

## Vyvanse™ (lisdexamfetamine dimesylate)

ClI Rx Only

**BRIEF SUMMARY:** Consult the Full Prescribing Information for complete product information.

### WARNING: POTENTIAL FOR ABUSE

**AMPHETAMINES HAVE A HIGH POTENTIAL FOR ABUSE. ADMINISTRATION OF AMPHETAMINES FOR PROLONGED PERIODS OF TIME MAY LEAD TO DRUG DEPENDENCE. PARTICULAR ATTENTION SHOULD BE PAID TO THE POSSIBILITY OF SUBJECTS OBTAINING AMPHETAMINES FOR NON-THERAPEUTIC USE OR DISTRIBUTION TO OTHERS AND THE DRUGS SHOULD BE PRESCRIBED OR DISPENSED SPARINGLY. MISUSE OF AMPHETAMINES MAY CAUSE SUDDEN DEATH AND SERIOUS CARDIOVASCULAR ADVERSE EVENTS.**

### INDICATIONS AND USAGE

Vyvanse™ is indicated for the treatment of Attention Deficit Hyperactivity Disorder (ADHD). The efficacy of Vyvanse in the treatment of ADHD was established on the basis of two controlled trials in children aged 6 to 12 and one controlled trial in adults who met DSM-IV-TR® criteria for ADHD.

Vyvanse is indicated as an integral part of a total treatment program for ADHD that may include other measures (psychological, educational, social).

### Long-Term Use

The effectiveness of Vyvanse for long-term use, i.e., for more than 4 weeks, has not been systematically evaluated in controlled trials. The physician should periodically re-evaluate the long-term usefulness of the drug for the individual patient.

### CONTRAINDICATIONS

Advanced arteriosclerosis, symptomatic cardiovascular disease, moderate to severe hypertension, hyperthyroidism, known hypersensitivity or idiosyncratic reaction to sympathomimetic amines, glaucoma. Agitated states. Patients with a history of drug abuse. During or within 14 days following the administration of monoamine oxidase inhibitors (hypertensive crises may result).

### WARNINGS AND PRECAUTIONS

#### Serious Cardiovascular Events

**Sudden Death and Pre-existing Structural Cardiac Abnormalities or Other Serious Heart Problems:** Children and Adolescents—Sudden death has been reported in association with CNS stimulant treatment at usual doses in children and adolescents with structural cardiac abnormalities or other serious heart problems. Although some serious heart problems alone carry an increased risk of sudden death, stimulant products generally should not be used in children or adolescents with known serious structural cardiac abnormalities, cardiomyopathy, serious heart rhythm abnormalities, or other serious cardiac problems that may place them at increased vulnerability to the sympathomimetic effects of a stimulant drug.

**Adults—**Sudden death, stroke, and myocardial infarction have been reported in adults taking stimulant drugs at usual doses for ADHD. Although the role of stimulants in these adult cases is unknown, adults have a greater likelihood than children of having serious structural cardiac abnormalities, cardiomyopathy, serious heart rhythm abnormalities, coronary artery disease, or other serious cardiac problems. Adults with such abnormalities should also generally not be treated with stimulant drugs.

**Hypertension and Other Cardiovascular Conditions:** Stimulant medications cause a modest increase in average blood pressure (about 2-4mm Hg) and average heart rate (about 3-6 bpm) and individuals may have larger increases. While the mean changes alone would not be expected to have short-term consequences, all patients should be monitored for larger changes in heart rate and blood pressure. Caution is indicated in treating patients whose underlying medical conditions might be compromised by increases in blood pressure or heart rate, e.g. those with pre-existing hypertension, heart failure, recent myocardial infarction, or ventricular arrhythmia.

**Assessing Cardiovascular Status in Patients Being Treated with Stimulant Medications:** Children, adolescents, or adults who are being considered for treatment with stimulant medications should have a careful history (including assessment for a family history of sudden death or ventricular arrhythmia) and physical exam to assess for the presence of cardiac disease, and should receive further cardiac evaluation if findings suggest such disease (e.g. electrocardiogram and echocardiogram). Patients who develop symptoms such as exertional chest pain, unexplained syncope, or other symptoms suggestive of cardiac disease during stimulant treatment should undergo a prompt cardiac evaluation.

#### Psychiatric Adverse Events

**Pre-existing Psychosis:** Administration of stimulants may exacerbate symptoms of behavior disturbance and thought disorder in patients with a pre-existing psychotic disorder.

**Bipolar Illness:** Particular care should be taken in using stimulants to treat ADHD in patients with comorbid bipolar disorder because of concern for possible induction of a mixed/manic episode in such patients. Prior to initiating treatment with a stimulant, patients with comorbid depressive symptoms should be adequately screened to determine if they are at risk for bipolar disorder. Such screening should include a detailed psychiatric history, including a family history of suicide, bipolar disorder and depression.

**Emergence of New Psychotic or Manic Symptoms:** Treatment-emergent psychotic or manic symptoms, e.g. hallucinations, delusional thinking, or mania in children and adolescents without a prior history of psychotic illness or mania can be caused by stimulants at usual doses. If such symptoms occur consideration should be given to a possible causal role of the stimulant, and discontinuation of treatment may be appropriate. In a pooled analysis of multiple short-term, placebo-controlled studies, such symptoms occurred in about 0.1% (4 patients with events out of 3482 exposed to methylphenidate or amphetamine for several weeks at usual doses) or stimulant-treated patients compared to 0 in placebo-treated patients.

**Aggression:** Aggressive behavior or hostility is often observed in children and adolescents with ADHD, and has been reported in clinical trials and the post marketing experience of some medications indicated for the treatment of ADHD. Although there is no systematic evidence that stimulants cause aggressive behavior or hostility, patients beginning treatment of ADHD should be monitored for the appearance of, or worsening of, aggressive behavior or hostility.

#### Seizures

There is some clinical evidence that stimulants may lower the convulsive threshold in patients with prior history of seizures, in patients with prior EEG abnormalities in absence of seizures, and, very rarely, in patients without a history of seizures and no prior EEG evidence of seizures. In the presence of seizures, the drug should be discontinued.

#### Visual Disturbance

Difficulties with accommodation and blurring of vision have been reported with stimulant treatment.

#### Tics

Amphetamines have been reported to exacerbate motor and phonic tics and Tourette's syndrome. Therefore, clinical evaluation for tics and Tourette's syndrome should precede use of stimulant medications.

#### Long-Term Suppression of Growth

Careful follow-up for weight in children ages 6 to 12 years who received Vyvanse over 12 months suggests that consistently medicated children (i.e. treatment for 7 days per week throughout the year) have a slowing in growth rate, measured by body weight as demonstrated by an age- and sex-normalized mean change from baseline in percentile, of -13.4 over 1 year (average percentile at baseline and 12 months, were 60.6 and 47.2, respectively). Therefore growth should be monitored during treatment with stimulants, and patients who are not growing or gaining weight as expected may need to have their treatment interrupted.

#### Prescribing and Dispensing

The least amount of amphetamine feasible should be prescribed or dispensed at one time in order to minimize the possibility of overdose. Vyvanse should be used with caution in patients who use other sympathomimetic drugs.

#### ADVERSE REACTIONS

##### Clinical Studies Experience

The premarketing development program for Vyvanse included exposures in a total of 762 participants in clinical trials (348 pediatric patients, 358 adult patients and 56 healthy adult subjects).

In the controlled pediatric (aged 6 to 12) trial, 10% (21/218) of Vyvanse-treated patients discontinued due to adverse reactions compared to 1% (1/72) who received placebo. The most frequent adverse events leading to discontinuation and considered to be drug-related (i.e. leading to discontinuation in at least 1% of Vyvanse-treated patients and at a rate at least twice that of placebo) were ECG voltage criteria for ventricular hypertrophy, tic, vomiting, psychomotor hyperactivity, insomnia, and rash (2/218 each; 1%). The most common adverse reactions (incidence  $\geq 5\%$  and at a rate at least twice placebo) were decreased appetite, dizziness, dry mouth, irritability, insomnia, upper abdominal pain, nausea, vomiting and decreased weight.

In the controlled adult trial, 6% (21/358) of Vyvanse-treated patients discontinued due to adverse events compared to 2% (1/62) who received placebo. The most frequent adverse events leading to discontinuation and considered to be drug-related (i.e. leading to discontinuation in at least 1% of Vyvanse-treated patients and at a rate at least twice that of placebo) were insomnia (8/358; 2%), tachycardia (3/358; 1%), irritability (2/358; 1%), hypertension (4/358; 1%), headache (2/358; 1%), anxiety (2/358; 1%), and dyspnea (3/358; 1%). The most common adverse reactions (incidence  $\geq 5\%$  and at a rate at least twice placebo) were upper abdominal pain, diarrhea, nausea, fatigue, feeling jittery, irritability, anorexia, decreased appetite, headaches, anxiety and insomnia.

##### Postmarketing Reports

The following adverse reactions have been identified during post approval use of Vyvanse.

**Cardiac Disorders:** Palpitation

**Eye Disorders:** Vision blurred, mydriasis

**Immune System Disorders:** Hypersensitivity

**Nervous System Disorders:** Seizure, dyskinesia

**Psychiatric Disorder:** Psychotic episodes, mania, hallucination, depression, aggression, dysphoria, euphoria, logorrhea

**Skin and Subcutaneous Tissue Disorder:** Angioedema, urticaria

##### USE IN SPECIFIC POPULATIONS

**Pregnancy:** Pregnancy Category C. Amphetamines should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus.

**Nursing Mothers:** Amphetamines are excreted in human milk. Mothers taking amphetamines should be advised to refrain from nursing.

**Pediatric Use:** Vyvanse has not been studied in children under 6 years of age or adolescents. Amphetamines are not recommended for use in children under 3 years of age.

**Geriatric Use:** Vyvanse has not been studied in the geriatric population.

##### DRUG ABUSE AND DEPENDENCE

Vyvanse is classified as a Schedule II controlled substance.

##### OVERDOSAGE

Toxic symptoms may occur idiosyncratically at low doses. Treatment: Consult with a Certified Poison Control Center for up-to-date guidance and advice. The prolonged release of Vyvanse in the body should be considered when treating patients with overdose.

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Source: The Nielsen Company, Focus® Medical/Surgical December 2008 Readership Summary; Pediatric Section, Table 1001 and 1002 Projected Average Issue Readers