

COASTING NEWS SPRING 2007

Gymfinity

The fourth Annual GYMFINITY Activity needs to be cancelled for this Sunday, March 11, 2007. Unfortunately, Gymfinity had a scheduling conflict, and the COAST staff cannot find another date that works for the time being. We are looking at dates for RESCHEDULING at another date and time. We'll keep you updated! More details will follow. Thank you to all the people who called to RSVP. We'll hold on to those until we know of the new date.

REMINDERS!!!!

Please call us at (608) 263 - 8539 or 1-877-947-2229 if...

- your child "steps-up" from their daily asthma medicine.
- your child takes breathing medicine (albuterol or oral steroids).
- your child is diagnosed by their physician or an urgent care physician with a respiratory illness.
- your child is having their blood drawn for a medical procedure and the time is close to their birthday or annual visit.
- you have moved or are planning to move, we would like to send you a welcome basket.



February 23-27, the COAST staff attended the most recent AAAAI (American Academy of Allergy, Asthma and Immunology) meeting. Dr. Rob and the COAST staff were featured in MedPage Today. Here is the article that was published and can be found at the following website.

<http://www.medpagetoday.com/AllergyImmunology/2005AAAAMeeting/tb/5131>

AAAAI: Frequency of Colds in Infancy Linked to Asthma Risk

SAN DIEGO, Feb. 26 -- More than 75% of children who develop a wheezing illness before the age of three years will go on to have asthma by age six, reported investigators here.

In addition, children with rhinoviral infections who developed wheeze before age one had a threefold risk for developing asthma later on, reported the Childhood Origins of Asthma (COAST) investigators at the American Academy of Allergy, Asthma, & Immunology meeting here.

"We geared the project to convince ourselves as well as the rest of the scientific community that respiratory syncytial virus, a common virus that causes wheezing in children, was the dominant driving force in leading to the development of persistent respiratory illness at age of three to four years, and ultimately asthma," said Robert F. Lemanske, Jr., M.D., of the University of Wisconsin Medical School in Madison.

"What we found to our surprise was that it wasn't RSV that was doing it," he continued. "It was the common cold virus, the rhinovirus. There are more than 100 different strains of rhinovirus, so this is a common infection that we get, and the relationship of this to the development of these outcomes was a big surprise to us."

The investigators followed a birth cohort of 287 children for nearly eight years, and found that as the children reached age three, more than 75% who developed a wheezing illness, regardless of the viral etiology, would go on to develop asthma by their kindergarten or first-grade years.

"Rhinovirus continues to be the most striking relationship," said Kathleen A. Roberg, R.N., M.S., also of the University of Wisconsin. "However, respiratory syncytial virus and parainfluenza virus illnesses are similarly related to the diagnosis of asthma. These data would suggest that there is a time between the age of one and three that is critical in the development of persistent wheezing in children."

In two other presentations, COAST investigators reported that frequent respiratory illnesses during infancy were also associated with the development of asthma in early childhood, but not with immunologic or clinical markers of atopy, and that asthma at age six was associated with an early and variable pattern of allergic sensitization in childhood.

The COAST study is an NIH-funded longitudinal, epidemiologic study following a cohort of high-risk children from before birth. The study is designed to evaluate genetic and environmental factors that may play a role in the development of asthma.

To be eligible for the study, participants had to have at least one parent with asthma and/or confirmed sensitization to aeroallergens. Cord blood samples were collected at birth, and additional samples were taken annually to evaluate cytokine response profiles.

The investigators also collected nasal lavage samples from the children at scheduled study visits and whenever they had significant respiratory illness, in order to determine whether the illness was viral or bacterial in origin.

They found that the 41 children who had a wheezing rhinoviral illness during infancy were significantly more likely to be diagnosed with asthma at age six than the 241 children who did not (asthma incidence 54% for the children who developed wheeze by age 1, vs. 23% for all other, $P=0.0002$).

In addition, non-wheezing rhinoviral infections predicted risk of recurrent wheeze at age three years (29% vs. 15%, $P=0.01$), but did not predict asthma at age six years (24% vs. 22%, $P=0.75$).

In contrast, the occurrence of an RSV wheezing illness during infancy, which was seen in 47 children, was not significantly associated with asthma diagnosis at age six (38% for children who wheezed with RSV illnesses, compared with 26% of other $P=0.13$). There was a trend toward an association between non-rhinoviral, non-RSV wheezing illnesses in infancy and asthma, but this trend was not statistically significant ($P=0.13$).

"In this high-risk cohort, outpatient wheezing illnesses with rhinovirus, but not RSV or parainfluenza virus, during the first year of life are associated with asthma at age six years,"

Roerg said. "But viral wheezing illnesses during the third year of life, regardless of etiology was significant for the development of asthma in nearly 75% of children."

In a second presentation, Rochelle Grabher, B.S., a senior clinical nurse specialist at the University of Wisconsin, and clinical research coordinator with the COAST study, reported that children who had frequent respiratory illnesses during infancy had a significantly higher incidence of asthma at six compared with children who had no significant respiratory illnesses.

In this substudy, the investigators prospectively examined the influence of the frequency of viral respiratory illness during infancy on the development of asthma and other markers of atopy.

In addition to having the lavage samples taken, the children had skin prick tests at age five, and were evaluated for atopic dermatitis and asthma with radioallergosorbent testing (RAST).

They divided the children into those who had no significant respiratory illness during infancy, those with one to four illnesses, and those with five or more respiratory illnesses during infancy.

They then compared the frequency of illness to the results of the various outcomes, and found that there were no significant differences between the children with frequent colds and those with no colds in regard to either skin prick test (52% versus, 45%, respectively, $P=0.62$), RAST results (58% versus, 36%, $P=0.14$), or the diagnosis of active atopic dermatitis (38% versus, 23%, $P=0.22$).

"However, the results demonstrated that children who had frequent respiratory illnesses during infancy had a higher incidence of asthma at age six year relative to those who had no respiratory illnesses in infancy," Grabher said.

In the third presentation by the COAST researchers, Christopher J. Tisler, M.T., also of the University of Wisconsin, reported on a study of the associations of allergic sensitization and the diagnosis of asthma at six years.

They evaluated allergen-specific immunoglobulin E results at ages one, three, and five years, looking for allergic antibody responses to common foods and aeroallergens, include dust mite, *Alternaria* mold, dog and cat dander, ragweed, silver birch, timothy grass, cockroach, milk, egg and peanut.

They found that sensitization to any allergen at the three time points was associated with increased rate of asthma at age six, and that sensitization to all three food allergens at age one, and to egg and peanut at age five were significantly associated with an increased rate of asthma at age six.

Among the aeroallergens, however, sensitization only to dog and cat dander at age one was associated with an increased rate of asthma at age six. But by age five, children with sensitization to any aeroallergen were more likely to be diagnosed with asthma within a year.

"Allergic sensitization to foods and/or aeroallergens in early life is associated with the development of asthma by six years of age," Tisler said. "The pattern of this sensitization process varies depending on the antigens evaluated, associations with milk, egg and peanut sensitization begin during infancy and persist into childhood. Associations with cat and dog sensitization also develop during infancy, whereas associations with mite and *Alternaria* sensitization do not occur until later childhood."

Dr. Lemanske said the next phase of COAST research will involve emerging viral molecular biology analysis techniques to try to tease out which strains of rhinovirus may be most strongly associated with asthma risk, with the ultimate goal being to develop, if possible, a prophylactic vaccine.

A second press release is located on the following website.

https://www.aaaai.org/media/news_releases/2007/02/022307a.stm

Exposure to dogs during infancy reduces risk of asthma

Children exposed to dogs during infancy have a reduced risk of asthma at age six, according to a study presented at the 2007 AAAAI Annual Meeting in San Diego, CA.

Nicholas A. Hallett, University of Wisconsin School of Medicine and Public Health, Madison, WI, and colleagues, examined the relationship between pet ownership and asthma diagnosis in 253 children enrolled in the Childhood Origins of ASThma (COAST) study. Pet ownership was categorized in groups according to exposure at birth, age three years, both or neither. All statistical analyses compared exposure groups to non-exposed children.

Results showed that children who owned a dog at both birth and age three years were less likely to develop asthma at age six (18.3% vs. 33.6%). Cat ownership at birth and/or age three was not significantly related to asthma diagnosis at age six.

This concludes that exposure to dogs, but not cats, throughout infancy and early childhood is associated with a reduced risk of asthma at age six, suggesting that early, prolonged exposure may be critical for environmental exposures to alter the risk of asthma.

RSV: NBC 15 News story

Additionally, the COAST project was featured in a NBC 15 news story. Here is the article that has been published online and can be found at the following website.

<http://www.nbc15.com/home/headlines/5703416.html>. The website includes some great video!!

Root of Asthma Researched

It appears to be nothing more than a cold.

But a virus called "RSV", which every child gets before the age of 2, can be dangerous to preemies or kids with breathing problems.

Those hospitalized with RSV are much more likely to suffer from asthma - a growing problem in Madison.

We take a closer look at a young girl who researchers say may be the key to better preventing and treating asthma.

7-year-old Hannah Olson is used to this sound - her nebulizer.

She's had it, along with other medications, since she was just 2-months old, for serious asthma.

Hannah's mom Jill Olson says, "She had severe coughing, wheezing, very difficult time breathing, belly breathing... just pretty scary"

Hannah says, "I know that I mostly have to take the inhaler lots of times"

Before Hannah turned one, they ended up in the ER several times, and had surgery on her eyes.

She was also diagnosed with RSV... a virus that local researchers are hoping to learn more about when it comes to kids like Hannah.

Dr. Theresa Guilbert of UW Health's Asthma Research says, "Often RSV is the heralding event for the first of many wheezing episodes in susceptible kids...we're trying to understand why those kids are wheezing, why they continue to have problems"

The study, broadly known as "COAST" at UW - started 7 years ago.

Hannah's mom was one of the first to enroll her child - while she was still pregnant.

Jill says, "I have learned so much, so much more than I would have learned if it had been doctor's appointments. Because they're teaching me everything they're learning about asthma."

And Hannah is what experts call the prototype of the patient they want to understand.

They're looking for a possible genetic link between RSV and asthma, among other things.

Guilbert says, "If we find that link, we you could start instituting preventative therapies at a young age."

And Hannah loves being able to help.

"Explaining to Hannah that it will help people in the future - maybe her kids - that just puts a smile on her face."

And in the meantime, it hasn't stopped her from doing the things most 7-year-olds love.

Hannah says, "Swimming, soccer and t-ball and basketball... I'm in all of those"

Dr. Theresa Guilbert, who leads the RSV & Asthma portion of the "COAST" study, says UW is always looking for more children to participate.

If you'd like to learn more, call UW Health Asthma Research at 262-5643.



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