outcome measures. Not only were the children sensitized, but they also had significant exposure to Alternaria. When the spore count increased, the airways demonstrated significant hyperreactivity, a hallmark feature of asthma. Their airway hyperreactivity was almost twice that of children who were not sensitive to this mold. Sensitivity to Alternaria may be one of those markers for the child with more severe asthma.

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DOG EXPOSURE IN INFANCY DECREASES THE SUBSEQUENT RISK OF FREQUENT WHEEZE BUT NOT OF ATOPY


Purpose of the Study. Asthma is on the rise, and pets are a variable that may influence the TH1/TH2 response in infants and children. This study’s objective was to determine whether pet exposure, specifically dog, early in life alters the risk of frequent wheezing (>3 times per year) or allergic sensitization.

Study Population. Cohort of 1246 healthy infants as part of the Tucson Children’s Respiratory Study were enrolled at birth and followed until age 13 years of age.

Methods. Evaluations performed at birth and ages 2, 3, 6, 8, 11, and 13 years provided information regarding pet exposure, parental asthma, frequency of wheezing, and skin test sensitization. Confounding variables including smoking, day care, number of siblings, cat exposure, and ethnicity were also considered.

Results. From the original cohort of 1246 subjects, data regarding wheezing and pet exposure was obtained from 1076 (86%) of participants through age. Frequent wheezing was seen in 237 (22%) of the study population. Almost 400 (32%) subjects had indoor dogs. Overall, children had significantly less wheezing if they had a dog versus those children that did not have a dog (17.1% vs 24.6%), but this reduction was mainly seen for children without paternal asthma. Wheezing reduction occurred regardless of the child’s atopy state. In children with parental asthma, there was no greater or lesser risk of wheezing based on the presence or absence of a dog. However, if the dog was removed at either age 3 or 6 in children with or without parental asthma, the child’s risk of wheezing increased. Dog skin test sensitivity was unaffected by the presence or absence of a dog in the home.

Conclusion. The presence of a dog in the home may reduce the risk of developing asthma.

Reviewers’ Comments. It is important to understand that this study did not focus on asthmatic children who are already sensitized to or symptomatic with exposure to dogs. In general, children with parents without asthma are less likely to develop asthma, but the presence of a dog is associated with an even lower asthma frequency. More interesting is that if the dog was removed during early childhood, the risk of developing frequent wheezing increased. Neither frequent wheezing in children with parental asthma, nor development of a positive dog skin test appear to be affected by the presence of a dog. This is another piece of evidence supporting the hygiene hypothesis and may suggest that early exposure to endotoxin, through pet exposure, may protect against asthma.

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AEROSOL THERAPY WITH VALVED HOLDING CHAMBERS IN YOUNG CHILDREN, IMPORTANCE OF A FACE MASK SEAL


Purpose of the Study. The purpose of this study was to determine the relative ability of 3 different spacers with masks to obtain a tight seal. The Nebuchamber (Astra Draco AB, Lund, Sweden), the AeroChamber (Trudell Medical, London, Ontario, Canada), and the Babyhaler (Glaxo GmbH, Germany) were compared with the Hans Rudolph anesthesia mask in infants and young children. Masks are viewed as a critical interface between the valved holding chamber and the small child for providing aerosol treatments.

Study Population. The study population included 30 children with a mean age of 3.2 years with asthma or wheezing. These children were required to have used a spacer with mask continuously for at least 1 month after appropriate instruction. Instruction was provided in 1-on-1 educational session provided by a respiratory nurse or pediatric pulmonologist.

Methods. Face mask leak was investigated for the Nebuchamber, AeroChamber, Babyhaler and Hans Rudolph mask by measuring ventilation with an inline pneumotachograph with the face mask maintained in place by the parent. Parents were asked to document how they deliver medication to their children without any additional instruction. The first 10 patients performed the test with full repeat studies with each mask, and then again within 1 month. On the second occasion, the parents were coached throughout the maneuver, encouraged to maintain the mask tightly applied to the child’s face.

Results. The AeroChamber and Hans Rudolph mask were assessed to have the best seal as determined by the magnitude of ventilation that was measured. The Nebuchamber provided the poorest seal, with 45% less ventilation than the AeroChamber and Hans Rudolph (Hans Rudolph, Inc, Kansas City, MO) mask. Additionally, there was considerable intraindividual variability (24%–48%) for all masks; however, the variability of the Nebuchamber was twofold greater than the other masks. During the coached sessions, all ventilatory volumes were significantly increased compared with the uncoached session. Variability during the coached session was considerably less except for the Babyhaler, which was unchanged.

Conclusions. The authors concluded that spacers with mask designed for use in small children may provide an inadequate seal to the face that leads to reduced or more variable dose delivery. The face mask seal is critical to deliver adequate aerosol to infants and young children, and this should be emphasized to parents.

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RANDOMIZED, CONTROLLED STUDY OF CLINICAL EFFICACY OF SPACER THERAPY IN ASTHMA WITH REGARD TO ELECTROSTATIC CHARGE

Dog Exposure in Infancy Decreases the Subsequent Risk of Frequent Wheeze but Not of Atopy
Kirk H. Waibel and Laurie Smith
Pediatrics 2002;110:456

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