Aeroallergens and the Respiratory tract

United Airway Disease

By Dr Sharyn Martin (PhD) March 2011

The term “united airway disease” is increasingly being used to describe the inflammation that occurs in both the upper and lower airways in those with chronic respiratory diseases such as allergic asthma and rhinitis. The main presenting symptoms varies between individuals, in some it maybe asthma, in others rhinitis. Many patients with asthma have rhinitis, which is itself a risk factor for the development of asthma. Repeated experience of asthma-like symptoms is also an important risk factor for the development of asthma. Often the same allergens will trigger both allergic rhinitis and asthma.

Relationship between the upper and lower respiratory tract.
Vocal Cord Disorder Symptoms present in the upper chest, throat (2.5 microns or less) can penetrate deep into the lungs producing immune reactions symptoms in the lower respiratory tract – e.g. asthma.

PM10, particles with diameters less than 10 micrometre) and fine particle (PM2.5, particles with diameters less than 2.5 micrometres) can penetrate and be retained in the deepest structures of the lung.

These (2.5 to 10 microns) tend to be deposited in the trachea-bronchial area.

References
A guide to identifying and reducing problematic exposures. Pollution and pollen. Allergic asthma is the most common form. Walter Canonica. 2010. The Link Between Allergic Rhinitis and Asthma: The United Airways. Symptoms, the development of allergic or non allergic/irritant responses to responses are characterised by an asymptomatic period of sensitisation to an allergen, whereas allergic or non allergic/irritant responses:


Larynx
Trachea
Bronchi
Lung
Heart
Ribs

PM10-2.5
PM2.5
Lungs (Bronchi).
Nasal passage
Oral cavity
Pharynx
Larynx
Trachea
Bronchi
Lung
Heart
Ribs

Levels of exposure required to cause allergic reactions vary, but once sensitised, irritation to allergens exacerbate asthma regardless of whether the individual develops allergic or irritant/non allergic responses to chemicals and allergens. Whether a person develops allergic or irritant/non allergic responses to particular substances, genetic makeup, physiological state at the time of exposure, and history of exposure to the same or other allergens or irritants have a part to play in an individual's potential development of allergic and/or non allergic responses.

In Australia 19.6% of the population have at least one allergy, of these 10% have asthma. Many children with allergic disease develop IgE (allergic) antibodies to common allergens. In infancy some people.

Although individuals with allergic and non allergic responses may experience the same symptoms, the development of allergic or non allergic responses to allergic/irritant responses may be caused by single exposure to the irritant or chronic low level exposures. For all these conditions reduction/prevention of exposure to triggers in the environment – home, work and school can improve assist in improving health and reducing symptoms. This is particularly important during pregnancy.

Location of Aeroallergens/Irritants through the respiratory system:

Cow's milk, egg, tree nut and peanuts can induce eczema and food allergies. Later in childhood inhalant allergens such as house dust mites, pollens, moulds and pet allergens can induce allergic/irritant responses. These include the form of asthma, rhinitis etc, personal sensitivity to aeroallergens/irritants reflect and individual's differing exposures and pathologic mechanisms.

Early recognition of problems/symptoms can offer an chance to avoid further health problems. If you suspect you have allergies or asthma visit a medical health practitioner for diagnosis and treatment. Diagnosis requires a complete medical history and diagnostic laboratory and physical examination. Health Care Without Harm. 2006. Risks to asthma posed by Indoor Health Care Environments. Health Care Without Harm. 2006. Risks to asthma posed by Indoor Health Care Environments.