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. These (2.5 to 10 microns) tend to be deposited in the trachea-bronchial area. Particles (PM10, particles with diameters less than 10 micrometres) and fine particles (PM2.5, particles with diameters less than 2.5 micrometres) can penetrate and be retained in the deepest structures of the lung. Larger particles (10 – 100 microns) are deposited higher up in the airways and produce symptoms in the upper respiratory tract – e.g. rhinitis, conjunctivitis.

Allergic and irritant/non allergic responses:

- Allergic asthma is the most common form. It is typically due to exposure to allergens such as house dust mites, pollens, moulds and pet allergens. It can start at any age and typically shows more regular symptoms are more likely to go on and have persistent asthma as an adult.
- Indicators of allergic asthma may include sensitivity to pollen and seasonal foods like peanuts. In Australia 19.6% of the population have at least one allergy, of these 10% have asthma. Many children can start with symptoms of hay fever in the first few years of life and eczema in early infancy. Later in childhood and adolescence the condition is often associated with asthma.
- Allergies can arise at any age. The time line to development of potential adverse reactions to these allergens/irritants starts in the uterus and progresses through life. Whether a person develops allergic or irritant/non allergic responses to chemicals and allergens reflects and individual's differing exposures and pathologic mechanisms. Whether a person develops allergic or irritant/non allergic responses to chemicals and allergens reflects and individual's differing exposures and pathologic mechanisms.
- Allergic and irritant/non allergic asthma. Symptoms occur deep in the chest. Allergic and irritant/non allergic rhinitis, conjunctivitis and sinusitis. Symptoms present in the nasal passages and eyes.
- Allergic and non allergic/irritant responses: Allergic responses are characterised by an asymptomatic period of sensitisation to an allergen, whereas non allergic responses are characterised by immediate onset of symptoms if exposed to the allergen.
- Allergic or non allergic/irritant responses:
- Treatment. Diagnosis requires a complete medical history and diagnostic laboratory and physical tests such as lung function tests, skin prick tests and IgE levels (RAST).
- Asymptomatic period: For all these conditions reduction/prevention of exposure to triggers in the environment – home, school, workplace, hobbies can reduce symptoms and improve quality of life.

References:
- Health Care Without Harm. 2006. Risks to asthma posed by Indoor Health Care Environments.
- Enrico Compalati; Erminia Ridolo; Giovanni Passalacqua; Fulvio Braido; Elisa Villa; Giorgio Ciprandi, Giorgio Walter. The nose-lung interaction: some observations on the mucosal immune system and its role in asthma. In: Tobacco smoke and air pollution; bronchial inflammation: A state of the art review. 2008: 181-190.
- Allergic or non allergic/irritant responses:
- Asthma and rhinitis can be induced by allergic, non-allergic triggers or both. Early recognition of problems/symptoms can offer a chance to avoid further health problems particularly important during pregnancy.
- Although individuals with allergic and non allergic responses may experience the same symptoms, the development of allergic or non allergic/irritant responses to the initial cause of asthma was mediated by allergic or non allergic mechanisms.