Hygiene Hypothesis: 
Asthma, Allergies, and Agriculture

Introduction

The increasing number of asthma cases has led scientists to what they call the hygiene hypothesis. The theory is that in today’s society decreased family size and fewer family farms has led to more cases of allergies and asthma. The theory is that this relationship is caused by the decreased contact between children and older siblings as well as contact with animals on the farm. Children are no longer exposed to natural microbes and infections early in life so their immune systems are not prepared to fight off these infections that cause asthma and allergies.

Asthma is caused by irritants that get into the lungs and make the passageways swell. This makes it hard for the lungs to receive air. Asthma affects 32.6 million Americans.

What is the hygiene hypothesis?

The hygiene hypothesis is made of two parts: the sibling effect and agriculture. With larger families of the past, children had contact with their older unhygienic siblings. Their older siblings carried infections and bacteria that the children were exposed to during early childhood. This contact helped their immune systems build anti-bodies to prevent infection later in life.

The other part of the hygiene hypothesis is agriculture. Animals carry naturally occurring bacteria which help children’s immune systems to build more anti-bodies. Pets are also an integral part of the hygiene hypothesis. The exposure to pet dander helps relieve allergies later in life.

What type of role does agriculture play in the hygiene hypothesis?

Agriculture plays a large role in the hygiene hypothesis. Scientists believe that the increase of asthma and allergy suffers is related to the decrease in family farms. This is because children are no longer exposed to the dirt and animals at young ages. This exposure helped children’s immune systems to build anti-bodies preventing asthma and allergies as well as other immune diseases.

How can the hygiene hypothesis help me?

The hygiene hypothesis can only help during the first few years of a child's life. You can help your child in other ways. The best thing a parent can do for a child with asthma is work to prevent the onset of an attack.
What can I do to help my child's asthma?

There are several preventative steps that parents can take for their child, including:

- Using dust mite covers on all pillows and mattresses.
- Wash sheets in unscented laundry detergent.
- Pets, such as dogs and cats, should be kept outside.
- No smoking in the home or around the child.
- Wash all bedding in hot water once a week.
- Vacuum carpets and furniture every week.
- Choose stuffed toys that can be washed.

Fig. 1. Gene environment interaction at work in farming families. Children exposed to stable environments from early on are protected against the development of asthma and allergy. Copyright 2004 Peter Mosimann. Used with permission.

Source: Kabesch & Lauener, 2004

References


