It's better to prevent allergies than treat them. How to do it?

Allergies are among the most common medical conditions that affect children and have increased dramatically during the last years. They have a huge impact on our physical and emotional health and quality of life. Respiratory allergies are the most common, followed by skin and food allergies.

Atopic dermatitis (AD), often called eczema, is usually the first manifestation of atopy. It has a chronic course, with occasional flare-ups. The itchiness is the main problem, causing irritability and sleep disturbances.

Children with AD are also at higher risk of developing psychological problems, such as dependency and fearfulness. The more severe the AD and the longer the duration of symptoms, the more important the problems. Mothers of children with AD tend to be more stressed about parenting.

Quality of life is significantly lower for children affected by food and respiratory allergies, as well as for the whole family, in general health perception, emotional impact on parents, and limitations on family activities. It affects meal preparation, parental stress levels and also school attendance. Respiratory allergies negatively impact overall quality of life and emotional condition, sleep, social and daily activities, and work or school performance, among other impairments. Persistent allergic rhinitis causes the most difficulties. Among teenagers with moderate to severe asthma, depression is another important issue affecting the quality of life.

Genetics

Family history of allergy is the single most important risk factor for developing allergic disease and if a child has more than one direct family member affected by allergies, this risk is very high. Overall, it is believed that a child without allergic parents may have up to a 20% risk of developing allergy; a child with one allergic parent may have a risk of 40% to 50%; and if both parents are allergic, the child's risk may be as high as 90%. Many genetic factors are involved, not all of them known. One of the most studied is filagrin, a protein which is one of the key barrier proteins in the skin, helping to maintain it intact. People who have a mutation in the gene encoding this protein have a higher tendency to develop severe and persistent AD, asthma and allergic sensitization to environmental and food allergens.

Environment

Besides genetics, many environmental factors have been proven to be involved in developing allergies, such as:

- formula feeding before 3 months of age
- maternal low education level
- at home: fungus/mold, renovation or painting during pregnancy
The “allergic march”

The allergic or atopic march is the sequential development of allergic disease manifestations during early life. Most often, the allergic march begins with AD and then proceeds to food allergy, followed by asthma and rhinitis.

AD usually improves with age, but may persist into adulthood, especially in severe cases. Family history, multiple symptoms and the onset at an early age imply more risk to developing allergies later in life.

What can be done to reduce the risk of allergy?

Many of the factors involved in increasing one’s risk of developing allergies are not controllable, like the family history, but some other are:

During the pregnancy:

- Avoid smoking. Both prenatal and postnatal exposure to cigarette smoke has been associated with a higher risk of allergies.
- Avoid stress, if possible. Prenatal stress seems to alter natural immunoregulatory mechanisms, thus increasing the risk of allergy.
- There is no reason to avoid having foods that are most likely to cause an allergic reaction, since it will not decrease the baby's risk of allergies. This nonrestrictive approach pertains to all foods, including the most allergenic: cow's milk, soy, eggs, wheat, peanuts, tree nuts, fish, and shellfish. Data are inconclusive with regard to peanuts, however, for which more research is needed.
- Other environmental factors related to atopy include exposure to dust mites, molds, animal dandruff, pollens, ozone and diesel exhaust, and wall fungus.

During the birth:

- Natural vaginal birth has been associated with a lower risk of allergies when compared to cesarean section (C-section). Babies delivered naturally acquire maternal gut microbiota (or normal, good bacterial intestinal flora) that enhance the development of the immune system and the response to potential allergens and infections. Giving birth through C-section does not offer this advantage. The infant’s intestine is sterile before birth. With a
Preventing allergies: What you should know about your baby's nutrition.

After the birth:

- Avoid smoking. Both prenatal and postnatal exposure to cigarette smoke has been associated with a higher risk of allergies.
- Exclusive breastfeeding for at least 4-6 months protects against allergic diseases. The superiority of human milk over any other form of nutrition for optimum psychological, nutritional, hormonal, and immunologic development of the newborn infant is well established. It appears to reduce the incidence of AD in children younger than 2 years of age. It reduces the early onset of wheezing before 4 years, although not necessarily asthma. It also reduces the incidence of cow’s milk protein allergy in the first 2 years of life, but not necessarily food allergy in general. No clear effects of breastfeeding on allergic rhinitis have been observed.
- There is no reason for the breastfeeding mothers to avoid having milk and eggs and other foods that are most likely to cause an allergic reaction, since it will not decrease the baby's risk of allergies (see above).
- If exclusive breastfeeding is not possible, infants with high risk for allergic disease, such as those who have first-grade relatives with severe allergies, may benefit from using a hydrolyzed formula instead of a standard cow’s milk formula. There are partial and extended hydrolyzed formulas and the choice should be done together with a pediatrician, since although the extensively hydrolyzed ones have shown some benefit over the partially hydrolyzed ones, the first are more expensive, as they require more intensive processing and have a bad taste, being more difficult to tolerate sometimes.
- Do not use soy formulas. Soy protein is antigenic like cow’s milk protein and soy formulas have not been proven to reduce allergy risk, therefore they shouldn't be used to prevent allergies.
- Do not use aminoacid formulas. They have not been consistently studied for prevention of allergy and there is no evidence that supports their use, unless there's a history of severe allergy to partially or extensively hydrolyzed formulas.
- Early introduction of highly allergenic foods, such as peanuts, tree nuts, egg and fish has been shown to actually decrease the risk of allergies later in life, in infants who are not at high risk for developing allergies, contrary to what was believed previously. This is a reason why weaning guidelines are constantly changing adapting to these discoveries. Therefore, allergenic foods can be introduced between 4 and 6 months of age, as are other complementary foods. Before introducing any foods, the infant must be developmentally ready and able to sit up, with sufficient head and neck control.
- In order to decrease the risk of allergy, the following measures can be adopted:
  - Begin introducing single ingredient foods, one at a time, with one new food every 3-5 days, to observe the tolerance.
  - First introduce highly allergenic foods at home or in a controlled environment, not in a restaurant or at day care, after other common complementary foods like cereals or fruits have been tried and tolerated.
  - Once age/developmentally appropriate foods have been tolerated, similarly highly allergenic foods such as peanut butter and seafood can be introduced.
  - While cow’s milk should not be introduced before 12 months (for non-allergic but nutritional reasons), other dairy products such as cheese, yoghurt, laban or baked milk products can be introduced before 1 year.
  - In special circumstances, such as poorly controlled AD despite treatment, history of immediate reaction to a food or having a first-grade relative (mother, father, brother or sister) with peanut, seafood or similar allergies, always consult with a pediatrician or an allergist.
  - Know how to distinguish between a true allergic reaction to a food and the facial rash produced by acidic fruits due to contact reaction with histamine release. This is not a reason to delay the introduction and, if in doubt, your pediatrician can help you.

For more details, check out the American Academy of Asthma and Immunology leaflet: Preventing allergies: What you should know about your baby's nutrition.

REFERENCES