

Allergy, Parasites and the Hygiene Hypothesis

Maria Yazdanbakhsh

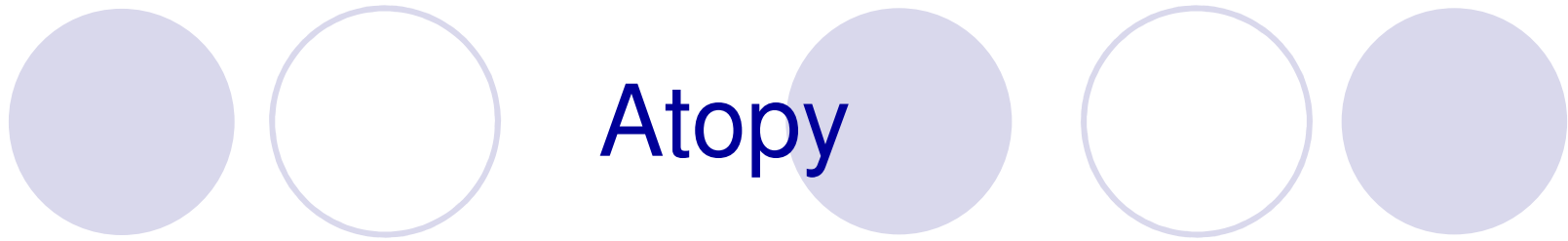
Peter G. Kremsner

Ronald van Ree



Atopy and Allergic diseases

- significant increase in prevalence of allergic diseases in the last 20-30 years
- differences in developing and industrial countries
- risk factors such as increased exposure to indoor allergens
- childhood infections shows a negative association with atopy and allergic diseases



- enviromental allergen leads to T cell stimulation
 - release of Cytokines (IL4, IL5, IL13)
 - raised IgE levels
- Increased numbers of eosinophiles and mast cells

Hygiene Hypothesis



- High hygiene
 - Vaccination
 - Antibiotics
 - Limited exposure to pathogens during early childhood
- Can lead to atopies and allergies



Helminth infections

- Stimulates TH2 Immunresponses
 - High levels of IgE, eosinophiles and mast cells
- People with helminth infections are rarely afflicted by allergic diseases
 - TH2 can't be the sole factor for allergic attack



IgE blocking hypothesis

- Highly not specific polyclonal IgE
- Unspecific IgEs saturates the Fc-receptors on mast cells
 - The binding site is blocked
 - degranulation is inhibited
 - Hypersensitivity will be immediated

Blocking antibodies



- Parasites specific IgG4 antibodies inhibit IgE mediated degranulation of effector cells
- Possible mechanism of allergen immunotherapy
- IL-10 stimulates the IgG4 differentiation
- Allergic individuals express lower levels of IL-10

True or False? The Hygiene Hypothesis for Crohn's disease

Bret A. Lashner M.D.

Edward V. Loftus Jr. M.D.



- Lack of exposures to enteric pathogens makes one susceptible to Crohn's disease

- Multiple childhood infections and poor hygiene protects

- Host develops tolerance or immunity to agents that could trigger Crohn's disease

Crohn's disease



- 2 different studies came to very different conclusions regarding the hygienic hypothesis
- The results of one study support the hygienic hypothesis
 - Exposure to pathogens in childhood stimulates the immune system
- But the other contradicts
 - Poor hygiene may contribute to the pathogenesis
- much work still needs to be done to determine if childhood exposure is truly important to the pathogenesis of Crohn's disease