The rise of atopy and links to infection

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THIS AUTHOR NOTES:

“Atopy is the state of allergy to common environmental antigens.”

Genetic and environmental factors promote atopic disorders.

There is an “impressive rise in prevalence” of atopic disorders in developed communities throughout the world.

Atopy is an immune disorder characterized by increased Th-2 immune response and the production of IgE.

This article reviews the changing of microbial exposures as a potential mechanism for increasing atopic disorders.

Specifically, this article explores the evidence that “exposure to certain antibiotics and public health immunizations in early life” are the cause of atopic disorders.

Also, the authors explore the evidence that “certain microbial exposures [infections] can inhibit experimental allergy.”

“Certain natural infections promote immune regulatory processes that can restrain atopy.”

“It is concluded that the hypothesis that changing patterns of microbial exposure may have promoted the rise in atopy is viable.”

“Atopy is an immune disorder of exuberant Th-2 activity, and unrestrained IgE production, which manifests as asthma, eczema, and hay-fever (allergic rhinitis) in children and young adults.”

There is a sharp rise in atopic disorders in developed countries in recent decades.

Recent evidence indicates that 45% of children in some countries may be suffering from atopic disorders.

“Antibiotic receipt in early life is associated with more subsequent atopy and asthma.”
The authors observed that oral antibiotics given early life (<24 months of age) for any clinical indication “predicted substantially more subsequent atopic disorder.”

The authors note that 80% of children who subsequently display atopic disorder received antibiotics at 2 months. [VERY DISTURBING].

The authors believe in the possibility of “direct promotion of atopy by antibiotic receipt.”

Treatment “with oral antibiotics in early life leads to increased IgE synthesis.”

The microflora which starts to colonize the human gut from 4 to 6 weeks of life play a crucial role in normal immune programming.

This normal microflora of the gut is disrupted by antibiotics.

There are reports that certain immunizations increase subsequent atopy:

(1) Whole-cell pertussis in the triple DPT vaccine of infancy predicts more subsequent atopic disorder.
(2) Natural measles exposure protects from atopy development, but measles immunization limits such protection.
(3) The triple DPT/polio immunization vaccine has been observed to predict more atopy and asthma.
(4) Avoidance of measles/mumps/rubella (MMR) immunization results in less atopy.

“It is proposed that the escape from certain microbial exposures in early life (as part of the complex process of socio-economic development) allows the developing immune system to mount unnecessary Th-2 immune responses to allergens derived from innocuous environmental agents including house-dust mite particles and pollens.”

The limited microbial exposure caused by hygiene, antibiotics, and vaccinations may also explain the rising of inflammatory disorders, such as insulin dependent diabetes, in developed countries.

“Certain microbial exposures may promote immune regulatory processes which can limit both inappropriate Th-2 and Th-1 mediated responses to foreign and auto antigens.”

“Therefore microbial exposure - including exposure to the commensal organisms of the gut - may play a key role in allowing the immune system to develop protective responses.”
KEY POINTS FROM DAN MURPHY

(1) Atopic disorders, including asthma, eczema, hay-fever, and allergic rhinitis, are dramatically increasing in developed countries throughout the world.

(2) As many as 45% of children in some countries suffer from atopic disorders.

(3) 80% of children who subsequently display atopic disorder received antibiotics by 2 months of age.

(4) Atopic disorders are caused by the over production of IgE as a consequence of increased TH2 response.

(5) Lifelong immune system function is dependent upon influences that occur early in life, primarily within the first 2 years of life.

(6) Antibiotics early in life are clearly associated with increased incidence of atopic disorders and asthma.

(7) Antibiotics early in life destroy normal gut microflora, which alters the maturation of the immune system, resulting in a predominant Th2 IgE atopic disorder response.

(8) There is evidence that certain vaccinations, especially pertussis, are associated with the development of atopic disorders.

(9) For young children to be infected with certain microbes protects them against the development of atopic disorders.

(10) This is one of many studies we have reviewed that indicates that commonly utilized medical interventions (antibiotics and vaccinations) interfere with innate biological processes, resulting in a price that has to be paid (atopic disorders).