The Hygiene Hypothesis

The hygiene hypothesis is a variant of the primary myelin disorder theory. It states that the risk of developing MS is related to exposure to viruses or other environmental factors, if these occur later in life. Living in excessively clean environments (too much hygiene) can delay exposure to these viruses or environmental factors, leading to disease.

An example of a disease affected by the hygiene hypothesis: Polio is not related to MS. However, it serves as a model for the hygiene hypothesis. Before the polio vaccines were developed, polio was a disease that affected the North, Whites and the affluent more commonly than those living in the South, non-Whites or the poor. Polio is caused by an infection with the poliomyelitis virus which is spread through feces/sewage. If this virus is caught in infancy, it generally causes diarrhea with very few becoming paralyzed. If it is caught later in childhood, then it can infect the nerves going from the spinal cord to the muscles and about 1 in 1000 become paralyzed. Those who lived in less hygienic environments (in those days the South, non-Whites or the poor) tended to get polio in infancy, not becoming paralyzed and being immune to the virus for the rest of their lives. Those who lived in more hygienic environments (in those days the North, Whites or the more affluent) tended to get infected with the virus later in life resulting in more cases of paralysis. This provides an example of how hygiene can affect the symptoms that result from an infection.

The hygiene hypothesis has been used to explain the increased rate of allergies and asthma in recent years. It has also been invoked as an explanation for many observations in MS.

The hygiene hypothesis and MS: If MS is related to an early life viral infection, the hygiene hypothesis might explain several curious observations about the disease. This could explain the North/South difference in the disease, and the recent increases in the rate of MS in Southern regions. The spread of improved hygiene may explain recent increases in MS in several Asian, Central American and South American countries. Similarly, this may explain why MS is becoming increasingly common in females due to recent changes in their roles in society. Recent increases in MS in non-White racial groups may also be explained by improved living conditions.

It is recognized that MS patients tend to get some childhood infections later in life than those who do not have MS. For example, on average, those with MS contract mononucleosis (due to the EB virus) later in life than those who do not have MS. Also, studies in Brazil have shown that those with increased levels of intestinal parasites (a marker of poor hygiene) are less likely to get MS, and those that do get it tend to have less severe courses.