Immune Status in Childhood

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Immune status is determined by the body's immune system and its ability to protect against infections and pathogens. The patient's immune status may be the most important part of the epidemiological information. Patients with antibody deficiency or dysfunction are prone to various infections.

First of all, knowledge of the immunoregulatory processes of pregnancy is essential to understand and treat various disorders that can lead to infertility, premature events, pre-eclampsia and other problems.

Like many other systems in the body, the immune system is not fully funnctional at birth and therefore we are at increased risk of infection. At the same time, the act of being born-moving from the sterile environment of the womb to the wider world, where a wide variety of pathogens live. The immune response in early life in dampened compared to adults.

More than 1600 genes are involved in innate and adaptive immune responses. Yet the immune system is relatively immature at birth and has to evolve during a life of exposure to multiple foreign challenges through childhood, via young and mature adulthood (including pregnancy), to the decline of old age. The immune system has 2 functional divisions: the innate (or natural) and the acquired (also termed specific or adaptive). Both components of immunity involve various blood-borne factors and cells.

The innate immune system provides an early first line of defence against invading pathogens.The cells of innate immune system develop and mature during fetal life, but at different times, and the function of all components of innate immunity is weak in newborns compared with later life.

Various studies have examined the neonatal microbiome at birth and the impact on pregnancy. Clinical and immunological characteristics in children with Down syndrome. Premature babies are at increased risk of sepsis compared to those born on time.

There is a wide range of methodologies available with which to assess the status and functional capacity of the immune system, but there is no single marker of either its status or functional capacity. The activity of many of the separate components of the immune system can be measured, most frequently by studying that component under controlled ex vivo conditions. It is also possible to study a coordinated immune response in vivo, usually to a controlled challenge (e.g., vaccination, intradermal application of an antigen).