

Immune System Behavior during Herpesvirus Infection in Childhood

Aslihan Turhan*

Medical Microbiology Department, Gaziantep University, Turkey

*Corresponding author: Aslihan Turhan, Medical Microbiology Department, Gaziantep University, Turkey, Tel: 917-524-1335; E-mail: aslihanTurhan3@gmail.com

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Editorial

The effect of hormones on immune response is a rapidly developing field. There are increasing number of studies connecting, CNS and endocrine systems to immune responses to infectious agents such as Herpes Simplex Virus (HSV). Herpes Simplex (HSV) infections causing primary and recurrent infections are the cause of a wide spectrum of diseases with symptoms changing from mucocutaneous lesions to life threatening infections. HSV causing chronic infection have long lasting effects on the immune system. Many studies link childhood HSV infection with immunocompromised conditions and HSV infection with primary infection and secondary activation are becoming more and more prevalent among young children either with malignancies [1] or by in utero infection [2,3]. Immune system also is bidirectionally affected by the imuno-modulating hormones such as Dehydroepiandrosterone Sulfate (DHEAS) and cortisol.

Although the mechanisms of immune and endocrine systems interaction is not yet defined, studies are showing health implications of hormones such as cortisol, growth hormone, prolactin, the catecholamines, epinephrine, and norepinephrin having immunomodulating effects [4]. It has been shown that free cortisol correlates with the severity of sepsis further investigation of changes in immunomodulatory hormone levels and effector cells can provide signals about how the disease is progressing. Although it has been suggested that the cortisol levels in younger children and those with more immature social skills may frequently experience elevations [5] it is also suggested that cortisol levels increased in adult patients with septic shock [6]. Although the number of children infected with HSV is quickly increasing not many studies are investigating the behaviour of the immune system in response to hormone levels in health and in infection such as in childhood Herpes infections. In this issue of the Journal Infectious Diseases and Therapy, Stamenkovic et al. [7] highlight the effect of IFN-g, IL-4, DHEAS and cortisol levels in HSV, EBV or CMV infected patients in the age range of 1-16 who were not under treatment at the time of sample collection. Although it is not indicated if the measured cortisol levels were of free cortisol or

bound cortisol or both (since it makes a difference in cortisol ability to access tissues if bound) [8] this study is pointing to an important fact by investigating the changes in the immunomodulatory hormones especially DHEAS could help explaining shifts in Th1/Th2 responses.

In this perspective it would be nice to see more studies showing the correlation between infection, cytokine level and hormone levels in chronic viral infections. Stamenkovic et al. study is important in pointing the importance of correlating cytokine response with immunoregulatory hormone changes. As shown in Stamenkovic et al. [7] study, these kind of interactions end up in changes in hematologic parameters. The emerging studies in the field of hormonal effects on immunomodulated diseases, provides the necessary information for further detailed studies in the field.

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