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Review Article

IMMUNE RESPONSE BY THE HUMAN BODY TO SARS-COV 2 INFECTION

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Abstract: Anew virus SARS-CoV 2 is responsible for Covid-19. In no time it became pandemic. Many existing drugs were tried but failed. It is a well known fact that our body fights against all infections and inflammations. Here we have described the immunological tools the body uses to prevent SARS-CoV2 infections.

Keywords: SARS-CoV 2,

INTRODUCTION

The mucosal surfaces of the body are particularly vulnerable to infection. Most COVID-19 tests are based on nasal swabs or saliva samples that measure the amount of SARS-CoV-2 virus in the mouth or nose, it is important to understand how immunity to the virus develops in these mucous membranes. [1]. The mucosal immune system provides three main functions: serving as the body's first line defense from antigens and infection, preventing systemic immune responses to commensally bacteria and food antigens (primarily food proteins in the Gut-associated lymphoid tissue, so-called oral tolerance), and regulating. Nonspecificimmunity (Innateimmunity) is the defense system with which a child is born [2-5].

It protectsagainst all antigens. Innate immunity involves barriers that keep harmful materials from entering the body. These barriers form the first line of defense in the immune response. However,when the child reaches the age of 7 or 8, most of its immune system development is complete.

Cutaneous and mucosal immuno-protection: The body has devoiced to prevent by restricted entry of bacteria, viruses nfectionincluding SARS-CoV 2 by Cutaneous and Mucosal Immuno-protection. It is clear that regional specialization of the immune system exists, and one such specialization is represented by skin-associated lymphoid tissue (SALT). The skin contains, especially within the epidermis, several important types of lymphoreticular cells whose interactions with antigens and with neighbouring keratinocytes lead to elaboration of antigenic signals that can be acted on by immunocompetent lymphocytes [6]. SALT protects the body tracts and skin [7].The SALT consists of diffuse collections of innate leukocytes and T cells in the epidermis and dermis.Keratinocytes provide an overlying physical barrier and secrete pro-inflammatory cytokines/chemokines that activate phagocytes and specialized antigen-presenting cells called Langerhans cells [6]. Antigens

are presented locally to activate epidermal memory T cells or are conveyed to naïve T cells in the local lymph node. Effector T cells generated can then home to skin sites under attack. While the skin is protected by Th1/Th17 responses initially [8], a persistent pathogen can trigger macrophage hyperactivation resulting in tissue damage.

Mucosal surfaces constitute a large host-environmental interface that must be protected from pathogenic organisms. The mucosal immune system [1] has evolved as a distinct immune organ functioning independently from its systemic counterpart. The mucosal immune system has the difficult task of mounting protective responses to invading microorganisms while maintaining a state of non-responsiveness to commensal bacteria and food antigens. The system has unique cellular components and functional aspects that permit it to carry out this dual role [9,10].

The mucosa-associated lymphoid tissue (MALT) Anatomical barriers, secretory IgA (SIgA), and innate leukocytes provide initial defense in the MALT. M cells in the follicle-associated epithelium (FAE) of inductive sites capture pathogens and convey them to mucosal APCs and T cells in domes covering B cell-containing lymphoid follicles. DCs also capture antigen via transepithelial dendrites. Effector lymphocytes migrate to multiple mucosal effector sites to provide coordinated protection via the "common mucosal immune system." Immune responses in the MALT are biased toward SIgA to reduce inflammatory damage to fragile mucosae [11], however, aggressive pathogens trigger more inflammatory Th1/Th17 responses [8].

Immuno-protection by the Gut: That is where most immune system cells are produced in the gut and then also multiply. These cells move to other organs and tissues through the blood. Healthy bacteria found in your gut is also used to stimulate the development of T cells,

About 70 percent of theimmune system is housed in the gut, .thereforethe food and beverages one con-sumes, can also help sup-port the immune system to SARS-CoV 2 Infection.The gut microbiota influences development and homeostasis of the mammalian immune system, and is associated with human inflammatory and immune diseases. Healthy bacteria found in the gut is also used to stimulate the development of T cells, which are responsible for distinguishing body's cells and tissue from potentially harmful things in the body [12]. When there the is an imbalance in your gut, such as an over-growth of "bad" bacteria, it can cause even cancer [13]. This is why maintaining the balance and health of the digestive system is important.

Try adding fiberrich foods to the diet such as fruits, grains, nuts and vegetables. Fiber helps to regulate your digestive tract, promote regular bowel movements and support the good bacteria in the gut.

Foods that contain probiotics [14] can also give boost to the health and prevent SARS-CoV 2 Infection. Probiotics are healthy bacteria that work to break down fiber in your body, reducing indigestion symptoms including gas and bloating. Probiotics are found in fermented foods such as sauerkraut and miso as well as yogurts containing live and active cultures.

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