

Mucosal Immunity: Recent Research Outcomes

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The mucosal membranes in the respiratory system, digestive system, urogenital system, eye conjunctiva, inner ear and the lining of the exocrine ducts have incredible mechanism to degrade and negate foreign material invasion. Most of the infections and the environmental allergies have mucosal route of entry. The innate and adaptive immunity mechanism of mucosal membrane is highly specialized and confers protection from such invasions. In fact, a significant percentage of immunocytes are present in the local immune system in the mucus. The mucosal immunity protects the organism from external microbial or particulate invasions, prevents their uptake and protects against the antigens even if they gain entry into the human body. Studies on the mucosal T-cell reactivity and secretory antibodies have substantial role in the development of vaccines [1].

Diverticulosis is the common form of gastrointestinal disorder that can be detected using endoscopic or radiological examination. Generally diet low in fiber, smoking, obesity, aging and lack physical exercise are the risk factors for development of diverticulosis in addition to disturbed microbial diversity. Symptoms include abdominal tenderness, constipation, or diarrhea, with fever or pain. Diverticulum can become inflamed may lead to perforation and infection. The use of antibiotics can prevent and treat infection but may not improve diverticulitis condition. In one of the recent studies it was found that microbial composition and inflammatory markers were similar among asymptomatic diverticulitis patients and controls and concluded that microbiota and inflammation of the mucosal inflammation do not play major role in pathogenesis of diverticulitis [2].

Vital infection of the lower respiratory tract is the most common in developing countries and leading cause of acute pulmonary distress. Humanized monoclonal antibody therapy is licensed for high risk individuals [3]. In the entire immune system, the mucosal immune

system is large proportion thus providing intensive protection to the site of infection. Mucosal immunity is the key to prevention of COVID-19 infection in the context of secretory and circulating IgA antibodies. Mucosal immunity plays a major role not only in diagnostics, but also in therapy and prophylactic purpose [4].

The mucosal lymphoid system along with peripheral lymphoid system and lymph nodes constitute the entire immune system. There is a diverse population of lymphocytes in each of the systems. Mucosal immune system has a complete array of innate and adaptive immune mechanisms. In gut mucosa there is significantly higher number of γ : δ T cells when compared to that in blood and lymph nodes. The epithelial cells lining the mucosal surface secrete polymeric IgA. The pathogenic organisms induce protective TH1 response. The soluble antigen present in the food may induce antigen specific tolerance or antigen specific suppression [5].

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