Secretory IgA

Every mucosal membrane surface such as the eyes, nose, throat, and gastrointestinal system represent a large portal of entry for pathogenic bacteria, viruses, and yeasts. The predominant antibody at these mucosal membranes is secretory IgA (sIgA), which can be found in saliva, breast milk, sweat, GU secretions, GI tract, respiratory tract, and in small amounts in the blood. It represents the body's first line of defense against toxins at these mucosal membranes.

SIgA is not synthesized by mucosal epithelial cells in these structures or derived from blood. Instead, it is produced by B-lymphocytes adjacent to the mucosal cells, then transported through the cell interiors, and released into the secretions from the cells. SIgA has the unique ability to prevent microbes, toxins, and antigens from impacting mucosal surfaces by a series of mechanisms known as immune exclusion. Immune exclusion refers to sIgA's ability to prevent invading microorganisms from adhering to epithelium. This is accomplished through one of several mechanisms; clumping of the microorganism via cross-linking, entrapping bacteria within a mucus layer, and/or clearance of the pathogen via peristalsis. SIgA can also selectively interrupt certain virulence factors and may also play a role in decreasing inflammation via control of interleukin and cytokine response.

SIgA is most often measured in feces or saliva. Measuring sIgA in feces can reveal information about gut immunity, inflammation, recent or current infections, and potential acute or chronic stress generally associated with GALT (gut-associated lymphoid tissue). SIgA measured in the saliva primarily provides insight into the body's stress response, however there is some evidence that activated B cells can migrate from GALT to salivary glands, which could potentially demonstrate systemic inflammation and possibly link GI pathology via salivary sampling.

Elevated levels of sIgA are associated with an upregulated, active immune or inflammatory response, and may be reflective of acute psychological and/or physical stressors. Chronic alcoholics, heavy smokers, and those with oropharyngeal carcinoma have also shown elevations in salivary sIgA.

Decreased levels of sIgA are commonly seen in individuals with low immune system functioning, and are a sign of chronic, ongoing psychological and/or physical stress (HPA axis dysfunction) to the body which has depleted sIgA reserves. SIgA declines with age, and can be seen with some chronic gastrointestinal disorders. Persistent low levels can help to explain why people can't shift an immune problem like allergies, chronic skin conditions or infections. Lower levels have been associated with increased risk for periodontal disease and caries.

Treatment considerations:

Lifestyle improvements, stress managment and improved nutritional staus may all lead to optimal sIgA levels.

- HPA Axis optimization
  - Consider testing diurnal cortisol levels to assess for HPA axis dysfunction. If HPA axis dysfunction is found, please review the Adrenal Dysfunction Stages and Considerations document on the Doctor's Data website for treatment options.

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Treatment considerations continued:

- Nutrition
  - Choline, essential fatty acids, glutathione, glycine, glutamine, phosphatidylcholine, vitamin C and zinc are all required in the production of sIgA. Probiotic strains shown to increase sIgA levels are: *Lactobacillus rhamnosus GG*, *Lactobacillus acidophilus*, *Bifidobacterium bifidum*, *Bifidobacterium infantis* and *Saccharomyces boulardii.*
- Immune support
  - This may be immune support directed against a certain pathogen or support of the immune system in a general sense, including a whole-food diet and exercise. Though a non-exhaustive list, Echinacea, elderberry, vitamin D, and ginger have all been shown to provide immune enhancing properties.
- Either low or high sIgA levels may warrant further work up:
  - Comprehensive stool analysis
  - Food sensitivity testing
  - Chronic viral testing

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