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Anti-Staphylococcal Humoral Immune Response in Patients with Chronic Rhinosinusitis**Ulrica Thunberg^{*1,2}, Svante Hugosson^{1,2}, Hans Fredlund^{2,3}, Yang Cao^{4,5}, Ralf Ehricht^{6,7,8}, Stefan Monecke^{6,7,9}, Elke Müller^{6,7}, Susanne Engelmann^{6,7,9}, Bo Söderquist^{2,3}**¹Department of Otorhinolaryngology, Örebro University Hospital, Örebro, Sweden²Faculty of Medicine and Health, Örebro University, Sweden³Department of Laboratory Medicine, Clinical Microbiology, Örebro University Hospital, Örebro, Sweden⁴Clinical Epidemiology and Biostatistics, School of Medical Sciences, Örebro University, Örebro, Sweden⁵Unit of Biostatistics, Institute of Environmental Medicine, Karolinska Institute, Stockholm, Sweden⁶Abbott (Alere Technologies GmbH), Jena, Germany⁷InfectoGnostics Research Campus, Jena, Germany⁸Leibniz Institute of Photonic Technology (IPHT), Jena, Germany⁹Institute for Medical Microbiology and Hygiene, Technical University of Dresden, Dresden, Germany

Staphylococcus aureus (*S. aureus*) can behave both as a harmless commensal and as a pathogen. Its significance in the pathogenesis of chronic rhinosinusitis (CRS) is not yet fully understood. This study aimed to determine serum antibody responses to specific staphylococcal antigens in patients with CRS and healthy controls, and to investigate the correlation between specific antibody response and severity of symptoms. Serum samples from 39 patients with CRS and 56 healthy controls were analyzed using a protein microarray to investigate the antibody response to *S. aureus* specific antigens, with a focus on immunoglobulin G (IgG) directed toward staphylococcal components accessible to the immune system. Holm-Bonferroni corrections were applied in all analyses. Information about growth of *S. aureus* in nares and maxillary sinus was taken from a previous study based on the same individuals. Clinical symptoms were assessed using a scoring system. IgG antibody levels toward staphylococcal TSST-1 and LukF-PV were significantly higher in the CRS patient group compared to healthy controls, and levels of anti-TSST-1 antibodies were significantly higher in the CRS patient group with *S. aureus* in maxillary sinus than in controls. There were no correlations between the severity of symptoms and levels of serum anti-staphylococcal IgG antibody levels for LukF-PV and TSST-1. TSST-1 and LukF-PV could be interesting markers for future studies of the pathogenesis of CRS.

Recent Publications:

1. Thunberg U, Augustsson I, Hugosson S
2. Isolated zygomatic fracture is preferably treated by Gillies reposition. It has a given place in the therapeutic arsenal, according to an observation study. *Läkartidningen*. 2010 12-25;107(19-20):1300-3 Swedish PMID: 20556981
3. Thunberg U, Engström K, Olaison S, Hugosson S. Anterior rhinoscopy and middle meatal culture in acute rhinosinusitis. *J Laryngol Otol*. 2013 Nov;127(11):1088-92
4. Thunberg U, Hugosson S, Monecke S, Ehricht R, Soderquist B. Molecular characteristics of *Staphylococcus aureus* associated with chronic rhinosinusitis. *APMIS*. 2015;123(1):37-44.
5. Thunberg U, Engstrom K, Olaison S, Hugosson S. Anterior rhinoscopy and middle meatal culture in acute rhinosinusitis. *J Laryngol Otol*. 2013;127(11):1088-92.

Biography

Dr. Ulrica Thunberg is specialized in otorhinolaryngology. She has been working in the field since 20 years, and has her main research in rhinology. She is working at the university hospital of Örebro, Sweden.

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