Review of: "Candida and Long Covid"

Burkhard Poeggeler[1]

1 Georg-August Universität Göttingen

Potential competing interests: No potential competing interests to declare.

This work on Candida and Long Covid deserves attention from all people working in the field of the gut-brain axis as a determinant of human health. The authors review the many connections that link Candida and Long Covid and suggest relevant molecular mechanisms and mediators that implicate Candida and Candida overgrowth in the development of Long Covid and its often devastating consequences:

- Zonulin, a circulating protein associated with increased intestinal and endothelial permeability, seems to be a central player. Proteases secreted by Candida stimulate the secretion of Zonulin, paving the way to the development of autoimmune diseases that are a hallmark of Long Covid.
- Candida hyphal walls express proteins that are analogous to gliadin/gluten (celiac disease antibodies) and to GPCRs (Crohn's disease antibodies) that can trigger anti-gliadin and anti-GPCR autoantibody formation. These two autoantibody-producing pathways both stimulate the release of zonulin.
- The spike protein S on SARS-CoV-2 can bind to ACE2 receptor-bearing cells and Toll-like receptor 4-bearing cells. The latter can also activate zonulin.
- A hypothetical pathophysiologic model is proposed with the central role of Candida overgrowth as a consequence of Covid-19 in promoting the genesis of Long Covid and associated autoimmune diseases, as well as dementia, cancer, and many other chronic diseases of premature aging.

The author proposes supplementation with a triple play of a prebiotic, probiotic, and postbiotic that may help to stop the development of the disease.

Since the pandemic, we have seen excess morbidity and mortality worldwide that presents a great challenge to science and society. Poor nutrition may be one decisive culprit why we now, for the first time since almost 300 years, are facing reductions in health span and even life expectancy. Research has to focus on increasing nutrition quality and should develop supplementation to restore, maintain, and improve health, fitness, and resistance to opportunistic invasive pathogens such as Candida.

This comprehensive and conclusive review can help to establish solutions to the problems of poor nutrition, opportunistic invasive pathogens, and associated chronic diseases.