Pendulum

Practice Protocol for High Akkermansia Levels

Addressing high levels of *Akkermansia muciniphila*

Developed in collaboration with Dr. Kara Fitzgerald, ND, IFMCP

Description

Akkermansia muciniphila has appeared in over 3,000 scientific publications, and abundance has been associated with maintaining intestinal integrity. The primary function of *Akkermansia muciniphila* is to support healthy mucin layer turnover in the intestines, and thus strengthen the intestinal lining. Furthermore, *Akkermansia muciniphila* releases short chain fatty acids such as acetate and propionate, that support the abundance and diversity of other health-promoting microorganisms in the gut.[1]

Higher levels of Akkermansia have been associated with longevity and individuals fighting autoimmune diseases. Higher levels observed in stool may be due to a change in the gut lining, releasing Akkermansia into the fecal bolus. The current leading hypothesis on mechanism of action from researchers is that the body upregulates biological pathways and/or substances that help protect it when health is negatively impacted.[2] During infection, inflammatory markers increase because the inflammatory pathways are turned on to battle infection. More inflammatory proteins in the context of infection are a good sign. The way our microbiome is linked to our immune system is still being elucidated but there are preliminary studies showing the microbiome can respond to the host's immune and inflammatory pathways. There is a lot of ongoing research aimed at elucidating these complex relationships.

Supplement and Dietary Plan

- Encourage intake of polyphenols such as pomegranate, green tea, and grape seed[3]
    - Supplement as necessary with **Pendulum' Polyphenol Booster** to boost Akkermansia which may further enhance the benefits
    - Research shows that polyphenols are neuroprotective in conditions associated with high Akkermansia[4]
- Encourage intake of prebiotic dietary fibers such as onion, chicory, garlic, asparagus, banana, and artichokes[5]
    - Supplement as necessary
- Consider supplementation of a multistrain probiotic formulation, such as **Metabolic Daily**, to help promote a healthy ecosystem in the gut
- Consider supplementation with **Akkermansia**, if indicated by the full clinical picture
- Consider the possibility of intestinal permeability and/or damaged mucosa especially with other microbiome test findings (low IgA, elevated zonulin)
- Consider a classic 5R protocol or 6R protocol

"I suspect that elevated levels of Akkermansia in the stool may be indicative of another process happening in the body, such as a compromised mucin layer liberating higher amounts of Akkermansia in the stool. Given Akkermansia's specificity to inhabit the mucin layer, I am not convinced that elevated stool Akkermansia levels are related to a true increase in abundance. Therefore it is critical to look at the entire clinical picture when deciding how to treat the patient."

Dr. Kara Fitzgerald, ND, IFMCP

References

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(4) Bhullar, Khushwant S, and H P Vasantha Rupasinghe. “Polyphenols: multipotent therapeutic agents in neurodegenerative diseases.” *Oxidative medicine and cellular longevity* vol. 2013 (2013): 891748. doi:10.1155/2013/891748

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