Ruminococcus gnavus

Moyamoya disease (MMD) is a rare cerebrovascular disease endemic in East Asia. The p.R4810K mutation in RNF213 gene confers a risk of MMD, but other factors remain largely unknown. Mineharu et al. tested the association of gut microbiota with MMD. Fecal samples were collected from 27 patients with MMD, 7 patients with non-moyamoya intracranial large artery disease (ICAD) and 15 control individuals with other disorders, and 16S rRNA were sequenced. Although there was no difference in alpha diversity or beta diversity between patients with MMD and controls, the cladogram showed Streptococcaceae was enriched in patient samples. The relative abundance analysis demonstrated that 23 species were differentially abundant between patients with MMD and controls. Among them, increased abundance of Ruminococcus gnavus > 0.003 and decreased abundance of Roseburia inulinivorans < 0.002 were associated with higher risks of MMD (odds ratio 9.6, P = 0.0024; odds ratio 11.1, P = 0.0051). Also, Ruminococcus gnavus was more abundant and Roseburia inulinivorans was less abundant in patients with ICAD than controls (P = 0.046, P = 0.012). The relative abundance of Ruminococcus gnavus or Roseburia inulinivorans was not different between the p.R4810K mutant and wildtype. The data demonstrated that gut microbiota was associated with both MMD and ICAD [1].

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Mineharu Y, Nakamura Y, Sato N, Kamata T, Oichi Y, Fujitani T, Funaki T, Okuno Y, Miyamoto S, Koizumi A, Harada KH. Increased abundance of Ruminococcus gnavus in gut microbiota is associated with moyamoya disease and non-moyamoya intracranial large artery disease. Sci Rep. 2022 Nov 24;12(1):20244. doi: 10.1038/s41598-022-24496-9. PMID: 36424438.