Campylobacter ureolyticus

The genus Campylobacter and Campylobacter ureolyticus may be associated with the rupture of cerebral aneurysms [1)]

An imbalance within the intestinal microbiota, referred to as dysbiosis, was suggested to play a role in the formation, progression, and rupture of IA. As no systematic review on this topic exists, considering the significance of this matter and a lack of effective prophylaxis against IA or cerebral vasospasm, we aim to sum up the current knowledge regarding their associations with intestinal microbiome, identify the gaps, and determine future prospects. Scientific databases were systematically and independently searched by two authors from inception to 1st May 2023 for original articles regarding the role of intestinal microbiota in intracranial aneurysmal growth, aSAH occurrence, as well as in cerebral vasospasm following aSAH. The PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) checklist was followed in an abstraction process. The STROBE tool was applied to assess the risk of bias. This research was funded by the National Science Centre, Poland (grant number 2021/41/N/NZ2/00844). Of 302 records, four studies were included that fully met eligibility criteria. Studies reported (1) that the relative abundance of Hungatella hathewayi is a protective factor against aneurysm growth and rupture, resulting from the reduced inflammation and extracellular matrix remodeling in the cerebral arterial wall and from reduced metalloproteinase-mediated degradation of smooth muscle cells in cerebral vessels. No article has evaluated microbiota in relation to cerebral vasospasm following aSAH although there is an ongoing study. We concluded that intestinal microbiota might be a potential target for diagnostic and therapeutic tools to improve the management of cerebral aneurysms. However, more studies of prospective design are needed [2)].

1)
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2)
Klepinowski T, Skonieczna-Żydecka K, Pala B, Stachowska E, Sagan L. Gut microbiome in intracranial aneurysm growth, subarachnoid hemorrhage, and cerebral vasospasm: a systematic review with a narrative synthesis. Front Neurosci. 2023 Oct 19;17:1247151. doi: 10.3389/fnins.2023.1247151. PMID: 37928732; PMCID: PMC10620726.