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Summary

COMPARATIVE ANALYSIS OF GUT MICROBIOTA IN PATIENTS WITH LYNCH SYNDROME AND SPORADIC MICROSATELLITE INSTABILITY COLORECTAL CANCER

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Lynch syndrome and sporadic MSI-high colorectal cancers harbor distinct tumor-associated gut microbiota profiles, with sporadic MSI tumors showing higher microbial diversity and enrichment of butyrate-producing bacteria.

KEY POINTS

- In 110 colorectal cancer tissue samples (47 Lynch syndrome, 63 sporadic MSI), alpha diversity was significantly higher in sporadic MSI compared to Lynch syndrome (Shannon index, p = 0.004).
- Beta diversity analysis using Bray-Curtis dissimilarity revealed distinct microbial clustering patterns between the two groups (PERMANOVA, p = 0.001).
- Sporadic MSI tumors were significantly enriched with Lachnospiraceae family members and Faecalibacterium genus, while Lynch syndrome tumors showed higher relative abundance of Proteobacteria-related taxa including Pseudomonas, Sphingomonadaceae, and Comamonadaceae.
- The enrichment of butyrate-producing bacteria in sporadic MSI and specific Proteobacteria in Lynch syndrome suggests different host-microbe interactions may be associated with hereditary versus sporadic MSI-high pathways.
- These distinct microbial signatures may serve as potential biomarkers for differentiating Lynch syndrome from sporadic MSI colorectal cancer.

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