

Reassessing the SIBO-Hypertension Link in Symptomatic Patients

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Background: Recent evidence suggests small intestinal bacterial overgrowth (SIBO) may serve as a diagnostic marker for hypertension through gut-cardiovascular axis mechanisms. However, this relationship has not been evaluated in symptomatic gastrointestinal patients. We aimed to assess the association between SIBO and arterial hypertension in patients undergoing clinical evaluation for gastrointestinal symptoms.

Methods: Retrospective cross-sectional analysis of 331 consecutive symptomatic patients (263 controls, 68 with hypertension) who underwent hydrogen breath testing. SIBO was diagnosed using North American Consensus criteria (H₂ rise ≥ 20 ppm within 90 minutes). Hypertension was established from medical records and medication use. Stratified analysis and Mantel-Haenszel methods assessed confounding and effect modification by age and sex.

Results: SIBO prevalence was similar between groups (50.2% controls vs 45.6% hypertension, $p=0.497$). Among SIBO-positive patients, 19.0% had hypertension compared to 22.0% of SIBO-negative patients (OR=0.83, 95% CI: 0.49-1.42). Notably, a sex-specific pattern was observed, though interaction testing did not reach statistical significance ($p=0.221$): women with SIBO showed lower odds of hypertension (OR=0.47, 95% CI: 0.22-1.01, $p=0.053$) while men showed higher odds (OR=1.63, 95% CI: 0.75-3.54, $p=0.22$). This sex difference persisted despite women with hypertension being older than men with hypertension (61.6 vs 55.6 years).

Conclusions: Unlike recent reports, we found no overall association between SIBO and hypertension in symptomatic gastrointestinal patients after controlling for age confounding. However, sex-specific trends were observed that did not reach statistical significance and should be considered hypothesis-generating, with women showing protection and men showing increased risk. These findings suggest gut-cardiovascular relationships may differ fundamentally between sexes and emphasize the importance of considering population characteristics and effect modification in microbiome research.

Key words: small intestinal bacterial overgrowth, arterial hypertension, gut-cardiovascular axis, sex differences, effect modification, breath test.

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