

01. Title: Association of Plasma Ghrelin Levels with Irritable Bowel Syndrome: A Systematic Review and Meta-Analysis

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Background: Ghrelin is a gastric peptide hormone that plays an important role in GIT motility, gut-brain signaling, and regulation of appetite. Recent studies suggest that there is an association of imbalanced plasma ghrelin levels with pathophysiology of irritable bowel syndrome (IBS) including its subtypes IBS-D and IBS-C. This study aimed to assess the association between dysregulated plasma ghrelin levels and IBS.

Methods: We carried out a systemic search across three databases– PubMed, ScienceDirect, and Google Scholar. This search helped us to identify three eligible studies which comprise of 129 IBS patients and 56 healthy controls. We applied a random effect model in analysis and pooled the estimates as mean with its corresponding standard deviations.

Results: The results showed that there was significant imbalance in plasma ghrelin levels when compared to controls (SMD = 0.86; 95% CI: 0.26–1.46; $p = 0.005$, $I^2 = 66\%$). Similar results were obtained for IBS-C(SMD = 0.86; 95% CI: 0.26–1.45; $p = 0.005$, $I^2 = 55\%$) and IBS-D (SMD = 1.91; 95% CI: 0.31–3.51; $Z = 2.34$, $p = 0.02$, $I^2 = 91\%$) patients but there was considerable heterogeneity in studies which limits the interpretations. Grade assessment showed the results to be high in certainty. The results remained consistent when leave one out analysis was performed.

Conclusion: We can conclude by these findings that plasma ghrelin levels show a meaningful association with pathophysiology of irritable bowel syndrome (IBS) and these levels vary across its subtypes. Moreover, these findings also advocate that ghrelin may serve as an important biomarker for diagnosis of IBS and can also distinguish between its subtypes.

Key Words: "Irritable Bowel Syndrome"[Mesh], "Ghrelin"[Mesh], "Association"[Mesh]

Figure or Table:

Comparison	No. of Included Studies	Total Population (IBS / Control)	Result (SMD [95% CI])	P-value	Heterogeneity
Total IBS vs Control	3	129 / 56	0.86 [0.26, 1.46]	0.005	$I^2 = 66\%$ ($P = 0.05$)

Comparison	No. of Included Studies	Total Population (IBS / Control)	Result (SMD [95% CI])	P-value	Heterogeneity
IBS-C vs Control	3	65 / 56	0.86 [0.26, 1.45]	0.005	$I^2 = 55\%$ ($P = 0.11$)
IBS-D vs Control	3	64 / 56	1.91 [0.31, 3.51]	0.02	$I^2 = 91\%$ ($P < 0.0001$)

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