INVESTIGATIONS OF THE RESPONSE OF MICROORGANISMS TO DIVERSE MUSICAL STUDY OF HUMAN GUT MICROFLORA AND OBESITY IN INDIAN INDIVIDUALS

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Background: Obesity is a modern day epidemic with multiple etiologies\(^1\). Recent reports on the contribution of gut bacteria to obesity\(^2\), prompted us to investigate this phenomenon in Indian individuals, who differ from western counterparts in diet and dietary habits.

Aims: To study the gut microbial community in normal (Avg BMI=22.64 kg/m\(^2\)), obese (BMI=41.39 kg/m\(^2\)) and treated-obese (BMI=32.57 kg/m\(^2\)) Indian individuals.

Methods: Gut microbial diversity was assessed by constructing 16S rRNA library pooled from 5 individuals in normal (n=10), obese (n=10) and treated-obese (n=7) group, with no fixed diet. Treated-obese individuals were obese individuals regressing to normal BMI after restrictive type surgeries (Laparoscopic Adjustable Gastric Band and Sleeve gastrectomy). In another study, we fixed the diet for these individuals and then quantified the gut microbiota.

Results: At phylum level, we found alterations in bacteroidetes and firmicute levels among normal and obese gut microbiota. Obese individuals showed an outburst of \textit{Bacteroides} (p< 0.05) genus as compared to the normal and intermediate levels were found in treated-obese. We also found increased levels of butyrate producing bacteria, \textit{Roseburia} and \textit{Faecalibacterium} (p< 0.05) in normal individuals as compared to obese. Fixed diet study also revealed similar results especially in the distribution of genus \textit{Bacteroides} and butyrate producing bacteria.

Conclusions: Distribution of \textit{Bacteroides} seem positively correlated with BMI. Normal gut showed a higher percentage of butyrate producing bacteria.

References