Name(s)	Project Number
Alexandra Maloof	**S1724**

Project Title

Bifidobacteria as the Potential Biotherapeutics in Controlling Type 2 Diabetes

Abstract

Objectives/Goals

It is increasingly recognized that the gut microflora in Type 2 diabetic (T2D) patients is characterized by lesser numbers of Bifidobacterium. The objective of this study is to find if giving T2D humans bifidobacteria for five weeks could effectively decrease their mean blood glucose levels.

Methods/Materials

T2D patients were selected from an Internal Medicine Practice and were instructed not to alter their lifestyles during the five-week duration of the project. For the five weeks, patients took two bifidobacteria capsules per day and monitored their glucose levels on Mondays, Wednesdays, and Fridays in the mornings and evenings. The researcher obtained the patients past HbA1c exams for the two months prior to the treatment and compared this value to their mean glucose readings for the five weeks.

Results

The bifidobacteria helped decrease the mean blood glucose levels of all patients except patients #2 and #9, because patients #2 and #9 altered their lifestyle and eating habits during the five-week period of the project. All the other patients experienced a 10% or greater decrease in their mean blood glucose levels. Other advantages of bifidobacteria were discovered in this project, including eliminating acid reflux (patients 8 and 12) and helping with weight loss (patients 1, 4, and 10). Even when including patient #2 and #9 data in calculating the t-test statistic, the yielded p-value was statistically significant at the 0.01 alpha level.

Conclusions/Discussion

The potential clinical impacts of this study are 2-fold: first, bifidobacteria can be utilized to prevent and treat T2D. Second, this project revealed that bifidobacteria has several other advantages such as eliminating acid reflux and helping with weight loss that can be further investigated. In conclusion, this project showed that bifidobacteria was shown to significantly decrease the mean blood glucose levels of T2D patients.

Summary Statement

The oral consumption of bifidobacteria can decrease the mean blood glucose levels of Type 2 diabetic patients.

Help Received

Dr. George John M. Jr., MD supervised the project.