Diabetes and The Saku Study: A Microreview

Abstract

Diabetes Mellitus, known in short as diabetes, is broadly defined as the inability of the body to use food, and more specifically sugar, for energy (CDC, 2019). Diabetes is a major health concern throughout the world. One area of interest concerning diabetes is the connection between differing groups and diabetic prevalence. The importance of this topic is vital to understanding how diabetes works and what characteristics of the human body contribute to its existence. Current knowledge about the spread of diabetes throughout different ethnic and economic groups has been documented (CDC, 2017). There are also statistics concerning the difference between diabetes based on sex. Even environmental factors have been studied concerning their impact on diabetes development. The Saku study looks into the way that hormones affect the development of diabetes in the two different gender groups in order to further understand why these diabetic differences exist between groups (Saku, 2012). The conclusions of this research paper found that a correlation does exist between sex-hormone binding levels and diabetic prevalence.

Introduction

Diabetes is a commonly found disorder of the human body. Over 100 million Americans are living with some form of diabetes or prediabetes (CDC, 2017). This is a problem that needs to be looked into as human health is a priority in scientific research. Research into diabetes has several different paths. These paths include a search for a cure, discovering new medications for diabetics to take, or even research that is focused on understanding diabetes for the benefit of the science community. The Saku Diabetes study follows the last path: research for the benefit of the science community. In this article, the correlation of sex hormone-binding globulin and testosterone was observed in how prevalent diabetes was in the two different gender groups with subjects being men and women from Japan. The focus of the study was particularly centered around the actions of sex hormone-binding globulin and testosterone on diabetic development.

Recent Progress

Since the discovery of insulin’s role in diabetes in 1921, the knowledge surrounding diabetes has greatly increased (Mandal, 2018). Most people know that obesity is strongly correlated with increased chances of having diabetes. However, recent studies have shown that other factors can affect one’s chances of having diabetes as well. One of these factors is stress (Curry, 2016). This stress factor provides evidence that the development of diabetes may be linked to environmental situations rather than genetics. Another area of research has looked into how to prevent diabetes, rather than looking at what causes it. Following this line of research, correlations have been discovered between coffee consumption and type 2 diabetes development (Curry, 2016). Increased coffee consumption is inversely correlated with risk of type 2 diabetes development. Although caffeine in coffee may be associated with this inverse correlation, researchers believe that other chemicals in coffee may be more responsible for the anti-diabetic effects that coffee has. The Saku study is slightly different from other current research however, as it looks into physiological differences between groups rather than environmental differences. These differences include varying levels of testosterone and levels of sex hormone-binding globulin.

Methods

The Saku study was based in Japan with subjects being Japanese males and females. The study was careful to exclude subjects who might skew results due to their lack of missing personal data. The study also defined diabetes, according to the World Health Organization criteria, as the inability to uptake sugar into cells. Overall, the study was very thorough in how they conducted the research. There was miniscule room for error in the experiment due to the excluding of subjects with extrinsic variables that might confound the data. The study was performed on a large scale which is vital to statistical significance, but due to its lack of diversity in subjects, since all are Japanese, the study might be better if it reached out to subjects of different ethnicities.

Results

The Saku study of diabetes results support that sex hormone-binding globulin plays a role in the development of diabetic risk. Sex hormone-binding globulin was inversely associated with diabetic prevalence in women and men, with the stronger correlation being with women (Saku, 2012). For men, testosterone was inversely associated with diabetic prevalence. For women, testosterone levels were positively associated with diabetes but this result was said to require further testing. The charts, tables, and graphs conveyed the data in a simple but appropriate manner. In addition, appropriate statistics were provided with the data to support any significance with their findings.

Discussion

The exact way in which sex hormone-binding globulin influences diabetic risk is unclear still. Predictions have been made suggesting that bioavailability of sex hormones and direct activation of specific receptors might be the way in which diabetes is influenced by sex hormone-binding globulin. These results are beneficial to the science and health communities. With further study and evidence, physicians may be able to better diagnose diabetes and prediabetes based on hormone levels in the body. However, further research will be needed for discovering how the exact mechanism works with sex hormone-binding globulin possibly impairing glucose metabolism. Further research into correlations between testosterone and diabetes in women is also needed. Continuations of this study may include looking into the genetic implications of increased transcription of the sex hormone-binding globulin to decrease the risk of diabetes. Other continuations of this study may be focused on how sex hormone-binding globulin differs in action between ethnic groups with regards to its correlation with diabetes. The Saku study provides strong support for a correlation between sex hormones and diabetes. The male group results were strongly agreed upon to be accurate. However, the female group results were said to require further testing as there may have been error within the experiment. One question that remains unanswered is how exactly does sex hormone-binding globulin work with regards to diabetes? Another question is why would testosterone levels correlate with diabetes differently in the two gender groups? Overall, the Saku study on diabetes and the effects of sex hormone-binding globulin was beneficial to the science community, but further testing and studies need to be conducted in order for any conclusions to be drawn.

References

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