Obesity and type 2 diabetes

Health & Medicine

Link between Obesity and Type 2 Diabetes Introduction The fattest country in Europe officially is the UK in which in every 15 is obese and in every 5 adults is overweight, and this is only the beginning; over the next two decades, the number of obese adults in the UK is expected to increase to 26 million people, thus showing a staggering increase of 73 per cent (“ Diabetes and Obesity”). Experts sense the risk of an increase in the cases of type 2 diabetes, cancer, and heart disease by more than a million (Laurance). Although there is subjectivity about the exact causes of diabetes, yet there are certain factors that increase an individual’s tendency to develop different kinds of diabetes mellitus. This particularly includes being obese or overweight for the type 2 diabetes.

Some Facts about the Link between Obesity and Type 2 Diabetes

The relationship of obesity with type 2 diabetes is well documented. Obesity accounts for 80 to 85 per cent of the risk of getting type 2 diabetes whereas according to the findings of the latest research, the tendency of obese people to suffer from type 2 diabetes is 80 times more compared to people having BMI lower than 22 (“ Diabetes and Obesity”). Fat distribution in the body also affects an individual’s tendency to develop type 2 diabetes. People having a body mass index (BMI) of 30 or greater are especially vulnerable to type 2 diabetes. Type 2 diabetes and a BMI of more than 25 has been found to account for up to 80 per cent of the type 2 diabetes’ new cases (“ The obesity and”). Resistance to insulin stops the transferring of glucose into the cells from the blood in the body. There are three principle theories that explain the link between obesity and type 2 diabetes which are explained below:

1. Disruption of Fat Metabolism

The first theory is based on the assumption that metabolism is subject to great changes because of being overweight because more fat molecules are released into the blood. When these fat molecules find their way to the cells which react to insulin, such as the cells of liver and muscle, fat cells interfere with the functioning of these cells and reduce their ability to respond to insulin.

2. Increased Inflammatory Response

The second theory states that fat in the abdomen releases pro-inflammatory chemicals. The condition of having excess abdominal fat is called as abdominal obesity, and it is an especially high-risk obesity form. Release of pro-inflammatory chemicals can cause insulin resistance by disrupting the insulin responsive cells.

3. Inducement of Fault Inside Cells

The third theory holds that obesity can lead to prediabetes. It is believed by the scientists that in prediabetes, the level of fatty acids in the blood increases. Fatty acids thus enter the cells and affect the functioning of the power houses of the cells i. e. their mitochondria, thus leading to lack of functioning of the cells or their black-out.

In addition to these theories, latest research has also identified a strong link between obesity and type 2 diabetes. In spite of the fact that a major component of the immune system is the inflammatory response and it is also a very significant way of protecting and repairing the tissue after injuries or infection, this response might also be activated without the foreign pathogens in some metabolic dysfunction conditions. “ Over the past several years, Beth Israel Deaconess Medical Center (BIDMC) endocrinologist Barbara Kahn, MD, has developed a large body of research suggesting that a

molecule called retinol binding protein 4 (RBP4) plays a key role in the process” (“ Critical Link Between”). Nobody showed the raised levels of RBP4 before the lab of Kahn till which, they were known for their function of transporting protein for the Vitamin A. Parallel consequences in the samples of human blood were found with additional work including the existing of high RBP4 levels in the insulin resistant obese people and low levels of RBP4 in the people with insulin sensitivity. In addition, people having genetic changes in RBP4 were at higher risk of developing diabetes because of high levels of protein in the blood (“ Critical Link Between”).

How can the Risk of Diabetes Type 2 be Reduced?

In spite of the strong link between obesity and type 2 diabetes, the sensitivity of body to insulin can be greatly improved by reducing the body weight; even slight reduction in body weight can prove very beneficial in terms of body’s sensitivity to insulin. Reduction in body weight also reduces an individual’s risk of developing such metabolic and cardiovascular conditions as different kinds of cancer, heart disease, and type 2 diabetes. NHS suggests that if the body weight is reduced by 5 per cent and the reduction in weight is ensued by regular exercise of moderate intensity, the risk of developing type 2 diabetes can be reduced by even more than 50 per cent (“ Diabetes and Obesity”).

Conclusion

Obesity can quickly lead an individual to type 2 diabetes if the intervention with appropriate exercise and healthy diet is not made. People whose bodies store excess fat around the abdomen are particularly at risk of suffering from type 2 diabetes. Abdominal fat cells release chemicals that are pro-inflammatory, which in effect reduce the sensitivity of the body to the

insulin. This occurs as a result of disruption of the insulin responsive cells' function as well as the body's tendency to respond to insulin. Insulin resistance is one of the most powerful driving factors for type 2 diabetes. Obesity induces changes in the metabolism of the body. These changes make the adipose tissue which is fat tissue release molecules of fat into the blood stream, which reduces insulin sensitivity by affecting the insulin responsive cells. Scientists also hold the opinion that obesity causes prediabetes which, as the name indicates, is a metabolic condition prior to diabetes which evolves into type 2 diabetes in almost every case. Despite the risks of developing type 2 diabetes posed by obesity, good news is that an individual's tendency of developing type 2 diabetes can be reduced by losing weight.

Works Cited:

" Critical link between obesity, diabetes identified." Beth Israel Deaconess Medical Center.

ScienceDaily. 6 March 2014. Web. 9 June 2014. .

" Diabetes and Obesity." 2014. Web. 9 June 2014. .

Laurance, Jeremy. " UK fat alert: 26 million will be obese by 2030." The Independent. 26 Aug.

2011. Web. 9 June 2014. .

" The obesity and type 2 diabetes connection." Bupa. 2014. Web. 9 June 2014.

.