

## Hyperinsulinemia: A Metabolic Disease, the Quality of Life of Its Patients and Treatment

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### Abstract

Hyperinsulinemia is a metabolic condition that occurs mainly in people with increased body weight, which implies an increased body mass index (BMI) and the consequences it can have in long term. Many people suffer from hyperinsulinemia but do not know it, as they ignore their symptoms which are polycystic ovaries, hair loss, difficulty having children, sparse menstruation, etc. Hyperinsulinemia is a metabolic condition due to the fact that the body constantly produces an increased to excessive amount of insulin regardless of the amount of glucose present in the blood. Hyperinsulinemia should not be confused with and directly linked to diabetes, as type 2 diabetes may occur after several years of untreated hyperinsulinemia due to the natural fatigue of the pancreas due to its excessive and uninterrupted production of insulin. Usually people who show symptoms of hyperinsulinemia are predisposed as it can be diagnosed in newborns, it has arisen from other metabolic diseases such as **isletoblastoma, liver disease**, etc. It can also result from the administration of drugs such as contraceptives where after their cessation the body has returned to normal or unfortunately hyperinsulinemia may remain.

It is a metabolic disease as it directly affects other metabolic factors such as the onset of hypertension due to **sodium retention in the kidneys, the manifestation of obesity, and the onset of dyslipidemia.**

The uninterrupted function of insulin production is confused with the increase in the amount of glucose in the blood, the pancreas is constantly working to regulate the uptake of glucose into the blood to maintain glucose at normal levels. Hyperinsulinemia in a pregnant woman can directly affect the fetus as it creates a state of hyperglycemia which is extremely dangerous as the child may be born **overweight, develop diabetes**, depending on the history of the father may be born with **predisposition or type 1 diabetes**. When there are no other health factors and the newborn shows only symptoms of hyperinsulinemia but has the right body weight and there is no aggravated health history in the couple then the symptoms of hyperinsulinemia subside from the newborn within about a **week**. This article explores all aspects of hyperinsulinemia and its consequences.

## Introduction

Many people in the world suffer from hyperinsulinemia, the most likely cause of which is **insulin resistance**. This is described as an inability of the cells of the human body to absorb insulin so there is an inability to use glucose. Insulin is a hormone that is produced in the pancreas by pancreatic **B cells** where insulin is then produced and injects the glucose that the human body consumes into its cells where the cells then use glucose to produce energy. When a patient develops insulin resistance it means that the cells are unable to absorb the insulin needed so they cannot use glucose to produce energy. The human body realizes this problem and to compensate for the inability of cells to absorb insulin it produces more insulin, i.e. it is in a constant supply of insulin, which, however, implies insulin resistance and the non-occurrence of diabetes mellitus due to insulin by compensating for the existing metabolic problem. Depending on the years a patient with hyperinsulinemia suffers, it can be determined approximately when they will develop diabetes, as over time the pancreas will get tired of the uninterrupted production of insulin which ultimately has a significant chance of the patient developing type 2 diabetes. Patients who develop hyperinsulinemia are usually overweight people with an increased body mass index (**BMI**), who do not eat properly, which translates into bad eating habits that are far from the Mediterranean diet, do not have regular and intermediate meals, follow a sedentary life with little or no exercise, or are on some medication that disrupts their metabolism.

Hyperinsulinemia is responsible for many changes in the human body, patients with hyperinsulinemia often report suffering from mood swings, for example while they are happy, they suddenly change their mood and become depressed. They feel that they are hungry and tired looking for food to recover from the hunger they feel, when they do work or exercise they get tired easily, they feel that they will fall down, there is a strong element of fatigue. They often complain that they forget, they do not remember things from one day to the next, they may remember something in the morning and in the afternoon they may not even remember that they thought of something the same morning. Unable to adapt, the pressure and concentration on reading a book, a homework, a conversation becomes easily tedious for people with hyperinsulinemia, for this reason when they are stressed they lead to irritability. In women there is a severe degree of inability to conceive for childbearing, as hyperinsulinemia causes **amenorrhea**, and inability to **induce ovulation, problematic ovulation**. Finally, people with hyperinsulinemia want to sleep, they like to sleep a lot. Based on the above, it appears that this is a serious state of change in human metabolism that affects the quality of human life.

## Analysis

Hyperinsulinemia is a pathological condition of the human body where the amount of insulin in the blood is higher than normal levels. Insulin is a hormone produced by the **B cells** of the pancreas and aims to activate the body's cells to absorb glucose and convert it into energy so that the human body can function properly. The pancreas normally produces the necessary insulin needed by the human body to maintain glucose at normal levels, providing the human body with insulin continuously after eating, and for the continuous maintenance of glucose at normal levels, even at normal levels during of sleep. In the case of hyperinsulinemia, the insulin produced by the pancreas can not properly manage the amount of insulin produced by the pancreas as human cells are unable to absorb the amount of insulin produced to regulate blood levels. The human body realizes the problem of absorption of insulin by the cells and is led to the process of increased production of insulin to cover the amount that can not be absorbed by the cells to maintain blood glucose levels at normal levels. In addition to this abnormal condition, the patient's physiology changes, the metabolism changes, habits that did not have before appear, such as a strong desire to eat food that often contains enough carbohydrates to lead the patient to obesity. Obesity is a fact that patients with hyperinsulinemia often experience as they find it very difficult to lose weight due to the consumption of high-carbohydrate food in combination with the continuous and uninterrupted production of insulin that exacerbates the problem of obesity. **Sodium buildup** in the kidneys may lead to hypertension in the future, many patients experience bloating and blow out for a few days, and increased intake of water may improve the condition.

Improving the quality of life of patients with hyperinsulinemia remains a top priority. Patients with hyperinsulinemia are more likely to develop **cardiovascular disease** due to the fact that hyperinsulinemia **reduces the concentration of magnesium in the blood**, as magnesium is known to **dilate blood vessels by impairing better blood circulation**. If summarize on the one hand the possibility that a patient with hyperinsulinemia and excess weight has **high cholesterol** combined with the **reduced concentration of magnesium** in the blood, it is easy to understand that this patient will face **coronary heart disease** in the future. Patients with hyperinsulinemia show low **HDL cholesterol and elevated LDL**, as the combination of cholesterol and magnesium deficiency in the blood can lead to **dyslipidemia, thrombosis, and atherosclerosis**. Also, overweight patients may experience some degree of respiratory failure. Women of childbearing age have problems with childbearing, hyperinsulinemia is responsible for the appearance of **polycystic ovaries, absence of long periods, amenorrhea, lack of ovulation, problematic ovulation** in which the woman infiltrates her ovulation. but do not manifest properly because either the eggs become cysts or the eggs are **not of good quality** with low chances for pregnancy, all of the above contribute to the appearance of infertility and the guidance of a couple trying to have children in search of the cause that often leads diagnosis of hyperinsulinemia. Patients with hyperinsulinemia often report that they suffer from mood swings, for example while they are happy they suddenly change their mood and become melancholy, show aggressive behavior, get angry and become moody. There are no magic solutions to treat hyperinsulinemia, there is no medicine that will be provided to the patient and then he/she will be well. The treatment of hyperinsulinemia is a long-term process that requires the full cooperation and will of the patient to improve his/her quality of life, especially for women who want to have children and overcome temporary infertility. Treatment of hyperinsulinemia requires discipline, support from the patient's home, and a thirst for life and activity.

Patients with hyperinsulinemia should be included in a program that **includes medication, exercise, and diet** immediately after diagnosis. All of the above should be related with each other every day. The patient must understand the condition of his/her health, that is, what is affecting his/her body and how immediately may help it for his/her own good [1,2].

Hyperinsulinemia is a complex condition with many aspects, patients are usually advised to adapt, but it is not impossible. The treatment of hyperinsulinemia lies in diet and somatic exercise rather than medication. Patients with hyperinsulinemia should adhere to the following.

- Physical mainly aerobic exercise daily, it is difficult and completely understandable for these patients to exercise because they get tired easily, but they must find the courage to exercise daily as it will help delay the complications that are the onset of high blood pressure.
- Less sedentary lifestyle and increased activity.
- Healthy eating, avoid foods that are high in fat and carbohydrates in combination with a variety of seasonal salads, a diet high in fiber, vegetable protein, and low glycemic index foods.
- For smokers, quitting smoking will help a lot in treating the condition.
- Medication, usually prescribed antidiabetic drugs that alone can not help patients if they do not help themselves by combining **medication, diet, and exercise**.

## Conclusion

Patients with hyperinsulinemia will soon experience the first health problems if they do not follow a healthier lifestyle, combining exercise and diet. The health problems that can occur are many and have been mentioned in this article. It is a pity that people, even at a very young age, suffer from not enjoying a high quality of life, suffering from the complications of the disease. There are many people among us who experience the complications of hyperinsulinemia but remain without a diagnosis or ignore the symptoms and signals emitted by their body. Women because of the infertility caused by hyperinsulinemia will realize that they suffer from it after seeking medical help because of the inability to conceive or the disorders of their period. This article was written in order for readers to understand what is hyperinsulinemia and at the same time to highlight the problems and complications that it can create in the future if the condition remains in its fate.

## Bibliography

1. Joseph Kraft, R. (2008). *Diabetes Epidemic & You*. (Pp. 1-157).
2. MedinePlus.