



AI-Generated Output

Using [MarketMuse NLG Technology](#) and GPT-3 (Snazzy)

*The following is text generated using GPT-3 (Snazzy.ai), primed with text from MarketMuse NLG Technology. **Bold text indicates content, including subheadings, coming from MarketMuse NLG Technology used to prime GPT-3.***

Glucagon as a Non-invasive Diabetic Treatment

The role of Insulin and Glucagon

Glucagon is a hormone produced by the beta cells of the pancreas. When blood sugar levels are high in a diabetic person it causes the pancreas to release insulin, which stimulates the breakdown of glycogen to glucose in the blood. Glucagon also releases insulin slowly, so that it is not influenced by the blood sugar levels. Once blood sugar levels fall, the pancreas releases glucagon, which stimulates glycogen breakdown and glycogenolysis of glucose in the liver and skeletal muscle.

The hormone is released in the body when there is low blood sugar. It works together with insulin to maintain a steady level of glucose (sugar) in the blood. Glucagon is usually released by the alpha cells of the pancreas (insulin is released by the beta cells).

In the case of hypoglycemia, a diabetic can have a low blood sugar level, which can cause confusion, loss of consciousness or seizure. The pancreas has a high number of glucagon receptors in the liver and skeletal muscle. These cells respond by releasing glucose into the blood stream. A small bolus of glucagon will restore normal blood sugar levels within minutes. Nasal Glucagon (Onset 10-15 minutes) is now available for patients who present with hypoglycemia while away from home. This provides an immediate, non-invasive delivery of glucagon to restore blood sugar levels and prevent long term damage which can result from severe hypoglycemia. Nasal glucagon is a prescription medication containing micronised glucagon powder that is delivered by nebulisation directly into the nasal mucosa, which allows it to act at the precise location of the problem (the liver).



Diabetes mellitus is a chronic disease caused by the resistance to insulin. To differentiate type 1 and type 2 diabetes, one can define them as a disease of insulin deficiency and glucose excess or a disease of resistance to insulin and glucose excess, respectively. The former is characterized by the lack of the hormone insulin released by the pancreas. Type 1 diabetes is treated with insulin injections for life while type 2 diabetes is treated with oral medications and lifestyle changes. Many cases of type 2 diabetes can be treated with lifestyle changes and oral medications, but some cases require insulin injections.

How do Glucagon treatments benefit people with diabetes?

Glucagon does not only raise the blood sugar levels of people with diabetes but it can also help normalize the body's metabolic process. When the blood sugar drops, the pancreas releases glucagon, which stimulates the breakdown of glycogen to glucose in the body. Glucagon helps the liver break down glycogen into glucose and release it into the bloodstream to bring the blood sugar levels back to normal.

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Normal blood sugar levels are essential for the human body to function properly. If you're not able to maintain normal blood sugar levels, then that can lead to certain health complications that may put your life at risk. Since glucagon is not a drug, you can use it without the fear of major side effects. Here are some of the benefits of glucagon:

- Improved control of blood sugar has been noted in patients who have used nasal glucagon in a clinical setting.
- Glucagon may reduce hypos, particularly severe hypoglycemic episodes.

Glucagon works in a relatively simple way. When the blood glucose levels go too low, glucagon is released by the body to reverse the effect of insulin on the liver. The liver then breaks down stored glycogen into glucose and releases it into the blood stream.



Side Effects of Glucagon Treatments

According to the patient information leaflet provided with the injection, the most common side effects of glucagon are nausea, vomiting, headache, loss of consciousness, seizures and allergic reactions. The most common and serious of these are liver/kidney problems, liver/pancreas damage or kidney/pancreas failure.

According to a report by the National Institute of Health, an estimated 1.25 million people have type 1 diabetes in the United States.

The side effects of glucagon treatments are different depending on the reason for the treatment. According to the patient information leaflet provided with the injection, the most common side effects of glucagon are nausea, vomiting, headache, loss of consciousness, seizures and allergic reactions. The most common and serious of these are liver/kidney problems, liver/pancreas damage or kidney/pancreas failure.

Glucagon comes as a powder to be dissolved in water. It can also be given as a nasal spray or injection.

The most common side effects of glucagon are nausea, vomiting, headache, loss of consciousness, seizures and allergic reactions. The most common and serious of these are liver/kidney problems, liver/pancreas damage or kidney/pancreas failure. The most common side effects in adults are nausea, vomiting, headache and dizziness. The most common side effects in children under 12 are vomiting, nausea, headache and dizziness.

Who Should Consider Glucagon Treatments

According to the patient information leaflet provided with the injection, the most common side effects of glucagon are nausea, vomiting, headache, loss of consciousness and severe hypoglycemia. The most common and serious of these are liver/kidney problems, loss of consciousness and severe hypoglycemia.

Glucagon is used to prevent the onset of hypoglycemia in people with type 1 diabetes and it is also prescribed to treat hypoglycemia. It is a hormone that is naturally produced by the pancreas. Glucagon increases the blood sugar levels by spiking the release of glucose into the bloodstream.



Glucagon is administered during a medical emergency or as part of a routine treatment plan. The medication can be administered using an injection under the skin, via an intramuscular injection (into a muscle) or via an intravenous (IV) injection.

Following hypoglycaemia, there may be a delay in the return to normal of liver function tests and in the ability to make red blood cells. The effects of glucagon on the liver and kidneys are usually reversible but reversibility of the bone marrow depression is uncertain. There is no information on the effect of glucagon on liver and kidney function in patients with renal disease, so caution is needed.

If you have had a severe allergic reaction to glucagon or any of its ingredients it is contraindicated for you. Other contraindications include severe renal failure, type 1 diabetes, ketoacidosis and hyperosmolar nonketotic syndrome (a condition in which the blood sugar level is extremely high). Although no significant problems have been reported with its use by pregnant women, animal studies found harmful effects. It is not known whether glucagon is excreted in breast milk.

It is reported that a very small number of people have experienced dizziness or drowsiness after taking this medication. If this occurs, avoid driving or operating hazardous machinery until the effect of the medication has passed and you are fully alert.