

Case report of pasireotide as a treatment option in late dumping syndrome

Dr. med. Sarah Boehm

Case report

23-yrs old female

Bardet-Biedl-Moon syndrome

Roux-en-Y bypass in 2016 (BMI 38.9 kg/m²)

2018 development of recurrent symptoms of hypoglycemia (palpitations, sweating, trembling)

How to proceed?

Diagnostic steps?

Continuous glucose measurement

Diagnostics

AGP-Bericht

22 März 2021 - 28 März 2021 (7 Tage)

LibreView

GLUKOSESTATISTIK UND -ZIELE

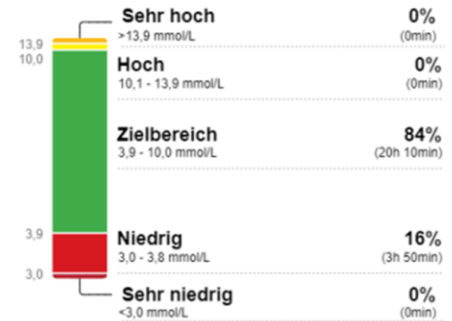
22 März 2021 - 28 März 2021 7 Tage
 Zeit (in %), in der der Sensor aktiv ist 93%

Bereiche und Ziele für Diabetes Typ 1 oder Typ 2	
Glukosebereiche	Ziele % der Messwerte (Zeit/Tag)
Zielbereich 3,9-10,0 mmol/L	Größer als 70% (16h 48min)
Unter 3,9 mmol/L	Kleiner als 4% (58min)
Unter 3,0 mmol/L	Kleiner als 1% (14min)
Über 10,0 mmol/L	Kleiner als 25% (6h)
Über 13,9 mmol/L	Kleiner als 5% (1h 12min)

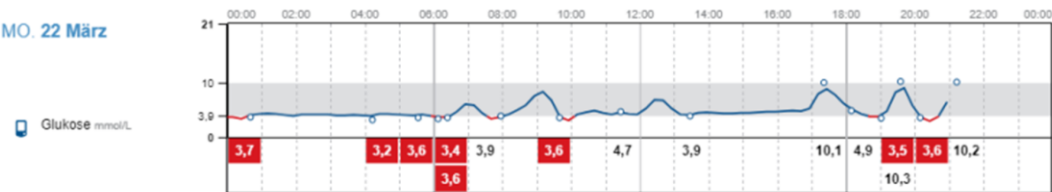
Jeder 5%ige zeitliche Anstieg im Bereich (3,9-10,0 mmol/L) ist klinisch von Nutzen.

Glukose-Durchschnitt 4,8 mmol/L
Glukosemanagementindikator (GMI) 5,4% bzw 35 mmol/mol
Glukosevariabilität 27,0%
 Definiert als prozentualer Variationskoeffizient (%CV); Ziel ≤36%

ZEIT IN BEREICHEN

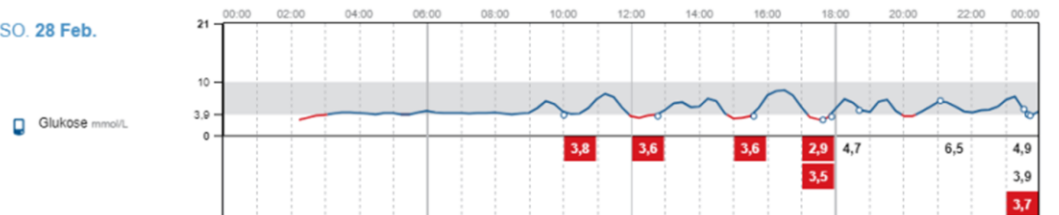


MO. 22 März



Legende: ■ Glukose hoch (>13,9) ■ Glukose niedrig (<3,9) ○ Scans/Ansichten 🍏 Eingetragen Spitze nach Essen ● Neuer Sensor Änderung der Uhrzeit

SO. 28 Feb.



Legende: ■ Glukose hoch (>13,9) ■ Glukose niedrig (<3,9) ○ Scans/Ansichten 🍏 Eingetragen Spitze nach Essen

Diagnosics 2

Oral glucose tolerance test (75g)	Glucose in mmol/l
fasting	4.5
After 90 min.	14.5
After 120 min.	3.6

Treatment

Treatment options?

Treatment 2

Education regarding nutrition

- X** Unsuccessful, partially due to the cognitive deficits caused by the syndrome

Acarbose

- X** Unsuccessful due to painful bloating

GLP-1 Receptor agonist

- X** Partially helpful but still the patient suffered from a severe hypoglycemia grade III

Further options?

Treatment 3

Pasireotide

Second-generation long-acting somatostatin analogue

High affinity to somatostatin receptors 5 (less to receptor 2)

Dominant inhibition of insulin over glucagon secretion

Approved for the treatment of Cushing disease and acromegaly

Results

AGP-Bericht

16 Oktober 2021 - 22 Oktober 2021 (7 Tage)

LibreView

GLUKOSESTATISTIK UND -ZIELE

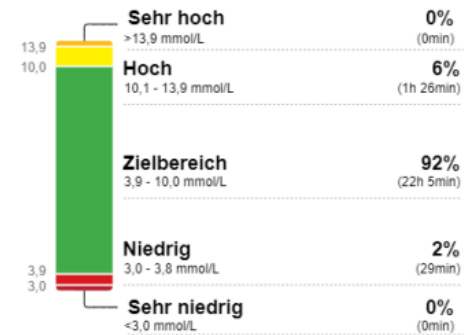
16 Oktober 2021 - 22 Oktober 2021 **7 Tage**
 Zeit (in %), in der der Sensor aktiv ist **95%**

Bereiche und Ziele für		Diabetes Typ 1 oder Typ 2
Glukosebereiche	Ziele % der Messwerte (Zeit/Tag)	
Zielbereich 3,9-10,0 mmol/L	Größer als 70% (16h 48min)	
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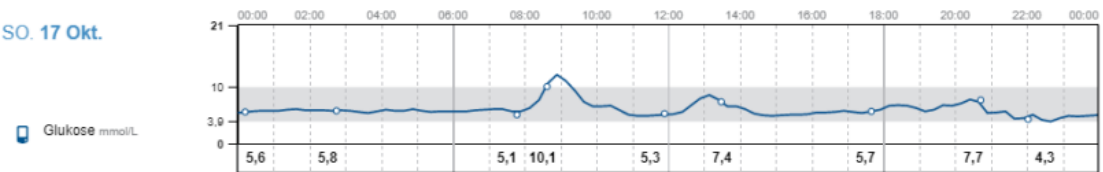
Jeder 5%ige zeitliche Anstieg im Bereich (3,9-10,0 mmol/L) ist klinisch von Nutzen.

Glukose-Durchschnitt **6,0** mmol/L
Glukosemanagementindikator (GMI) **5,9%** bzw 41 mmol/mol
Glukosevariabilität **32,9%**
 Definiert als prozentualer Variationskoeffizient (%CV); Ziel ≤36%

ZEIT IN BEREICHEN



SO. 17 Okt.



Legende: ■ Glukose hoch (>13,9) ■ Glukose niedrig (<3,9) ○ Scans/Ansichten 🍏 Eingetragen Spitze nach Essen ● Neuer Sensor 🕒 Änderung der Uhrzeit

Results 2

Oral glucose tolerance test (75g)	Glucose in mmol/l Before pasireotide	Glucose in mmol/l With pasireotide
fasting	4.5	5.8
After 90 min.	14.5	10.3
After 120 min.	3.6	4.2

Pasireotide as a treatment option in late dumping syndrome: A case report

Sarah Boehm¹, Susanne Hess^{1,2}, Philipp Gerber¹

¹ Department of Endocrinology, Diabetes, and Clinical Nutrition, University Hospital Zurich, Switzerland

² Department of Endocrinology and Diabetology, Hospital Lachen, Lachen, Switzerland

INTRODUCTION

Late dumping syndrome is a well-known complication after gastric surgery. It occurs about 1-3 hours after meal ingestion and is caused by an increased insulin release due to a fast rise in plasma glucose that finally leads to hypoglycemia. It is triggered by the consumption of carbohydrates. Symptoms are typical for hypoglycemia and include palpitations, perspiration, tremor, fatigue, weakness, hunger and even syncope.

Treatment always begins with dietary modification, avoiding rapidly absorbed carbohydrates, which leads to symptom relief in most patients. Further treatment options include pharmacological intervention starting with acarbose or diazoxid, which are both used off-label. If these measures are not successful, GLP-1 agonists, SGLT-2 inhibitors and pasireotide as a long-acting somatostatin analogon represent further options.

CASE REPORT

We report the case of a 23-year-old female patient suffering from Bardet-Biedl-Moon Syndrome who underwent gastric Roux-en-Y Bypass in 2016 (BMI of 38.9 kg/m²). In 2020, the patient suffered from a severe hypoglycemia grade III due to late dumping. Dietary modifications have been unsuccessful (partly because of the mental retardation associated with the Bardet-Biedl-Moon Syndrome), as well as the use of acarbose (flatulence) and a GLP-1 agonist.

Besides using a glucose sensor (freestyle libre 2) which sets off an alarm in the case of hypoglycemia, we discussed a trial with pasireotide. During a stay at our ward, we started with 60mg pasireotide s.c. before every meal. We increased the dosage after 3 days because of persistent hypoglycemia after the meals to 90 mg and finally to 150 mg s.c. before every meal. This dosage was not well tolerated due to diarrhoe, therefore we started with the intermediate long-term dosage of 20mg i.m. every 4 weeks after the discharge of the patient.

RESULTS

Before the treatment with pasireotide, the glucose curve throughout the day (detected by freestyle libre 2) was characterized by high and fast increases of glucose levels following a meal, often exceeding the normal limits. Shortly after, rapid declines in glucose levels were depicted. The average of hypoglycemic events were 5 per day (figure 1).

After the treatment with pasireotide, the glucose curve was much more stable regarding low values, the average of hypoglycemic events were decreased to 2 per day. The average glucose had slightly increased (figure 2). The time during the day at hypoglycemic levels (< 3.9 mmol/l) was decreased from 16% to 2%.

The treatment effect could also be demonstrated by a 75g oral glucose tolerance test before and after treatment with pasireotide (table 1).

DISCUSSION

Pasireotide seems to be a treatment option for selected patients suffering from late dumping syndrome if other treatment options have not been successful.

In contrast to octreotide, pasireotide has a higher affinity to the somatostatin-receptor 5 and inhibits thereby the insulin secretion more potently while simultaneously exerting less action on glucagon release. This results in less hypoglycemic events.

An oral glucose tolerance test after bariatric surgery, as demonstrated here, should only be performed in an inpatient setting since it can lead to severe hypoglycemia. An alternative test is the mixed meal test (e.g. with Ensure plus®), containing a fixed amount of carbohydrates, protein and fat.

The side effects of pasireotide (gastrointestinal symptoms) have been tolerated well in our case after almost one year of treatment, but in other cases they might lead to treatment interruption. A major disadvantage are the high costs for the treatment with an actual price of 3344 CHF monthly.



Figure 1. Freestyle Libre 2 glucose measurements before the intervention.



Figure 2. Freestyle Libre 2 glucose measurements after the intervention.

	Before the intervention	After the intervention
Fasting	4.5	5.8
After 90 min.	14.5	10.3
After 120 min.	3.6	4.2

Table 1. Blood sugar levels (mmol/l) during a 75g oral glucose tolerance test.

Poster

Thank you very much
for your attention