Nursing Experience of Octreotide in Treating Hypoglycemia in Acute Pancreatitis

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Objective: This article studies the therapeutic effect and nursing experience of octreotide in treating hypoglycemia in acute pancreatitis. Method: Sixty patients with acute pancreatitis treated in our hospital from January 2019 to February 2020 were selected as the study subjects, and the patients who met the criteria were randomly divided into intervention group (n=30) and control group (n=30).Both groups of patients were treated with octreotide, while the intervention group was given personalized whole-course intervention on the basis of it, to compare the treatment effect of the two groups and the occurrence of hypoglycemia. Results: The total effective rate was 73.33% in the control group and 96.67% in the intervention group. There was a significant difference in data between the intervention group and the control group (P < 0.05). The incidence of hypoglycemia was 26.67% in the control group and 3.33% in the intervention group. The difference between the control group and the intervention group was statistically significant (P < 0.05). The incidence of adverse reactions was 36.67% in the control group and 6.67% in the intervention group. The difference between the control group and the intervention group was statistically significant (P < 0.05). The nursing satisfaction of the patients in the control group was 79.00%, and that of the intervention group was 96.67%. The difference between the intervention group and the control group was statistically significant (P < 0.05). Conclusion: Octreotide has a good effect in the treatment of patients with acute pancreatitis. If personalized whole-course intervention can be given to patients with acute pancreatitis who receive 24-hour octreotide pump drip, the treatment effect, nursing satisfaction, adverse reactions and hypoglycemia can be further improved, and the patient's condition can be effectively maintained stable and the patient can recover as soon as possible.

Key words: Octreotide; Acute pancreatitis; Hypoglycemia; Nursing experience
Tob Regul Sci.™ 2021;7(5): 1451-1458
DOI: doi.org/10.18001/TRS.7.5.64

Acute pancreatitis (AP) is an inflammatory reaction caused by the activation of pancreatic enzymes in pancreatic organs by various factors, such as edema, digestion, hemorrhage and necrosis of the first-line tissues, and it is one of the more common acute abdominal diseases in clinic. The disease is very dangerous and developing rapidly. Moreover, complications and mortality rates are high. In the early treatment of moderate and severe acute pancreatitis patients, somatostatin or related analogues, such as octreotide, will be used early. This kind of drug can effectively shorten the hospitalization time of patients, reduce the mortality rate of patients, and inhibit pancreatic secretion, so it has also been widely used in the treatment of patients with acute pancreatitis in recent years. Hyperglycemia often occurs in patients with AP. There are few reports on the occurrence of hypoglycemia in AP patients during the treatment, while effective nursing can reduce the occurrence of hypoglycemia. Therefore, this paper also studied the nursing experience of octreotide in the treatment of acute pancreatitis with hypoglycemia, and the report is as follows: [1-3]

MATERIALS AND METHODS

General information

Sixty patients with acute pancreatitis treated in our hospital from January 2019 to February 2020 were taken as the study objects. The study subjects were all diagnosed as patients with acute pancreatitis by clinical symptoms, B-ultrasound, CT examination and blood biochemical test, and also met the clinical diagnostic criteria of pancreatic group-related acute pancreatitis of surgical branch of Chinese Medical Association. Patients who met the criteria were randomly divided into intervention group (n=30) and control group (n=30). Among the 30 patients in the control group, 17 patients were male and 13 patients were female; the youngest patient was 27 years old and the oldest patient was 80 years old, with an average age of (43.45 + 3.45) years; the shortest onset time of patients was 4 h and the longest was 36 h, with an average age of (13.82 + 4.45) H. Among the 30 patients in the intervention group, 16 patients were male and 14 patients were female; the youngest patient was 26 years old and the oldest patient was 81 years old, with an average age of (43.50 + 3.55) years; the shortest onset time of patients was 3 h and the longest was 36 h, with an average age of (13.79 + 4.43) H. Comparing the general data of two groups of patients, the results showed that there was no significant difference in data between the two groups ($P > 0.05$), which was comparable.

Methods

Both groups of patients needed basic treatment such as fasting, adjustment of water and electrolyte balance, gastrointestinal decompression, nutritional support, anti-infection, inhibition of gastric acid secretion, etc. After that, the patient was given octreotide (Hainan Zhonghe Pharmaceutical Co., Ltd., GuoyaoZhunzi H20103211) for treatment. The dosage was 1.0 mg, and the method of use was subcutaneous injection. During the injection process, 5.0% glucose 250.0 ml was added with 1.0 mg of octreotide, and continuous intravenous drip for 24 h. After the symptoms of abdominal pain have been alleviated and blood and urine amylase have returned to normal range (2.0-4.0 h), the drug can be stopped, and the duration of drug use is 4-12 days. During this period, the clinical symptoms of patients need to be observed, and the patients and urine amylase should be monitored. During this period, the intervention group also needs to give personalized whole-course intervention, and the specific measures are as follows:[4,5]

(1) Psychological nursing and disease knowledge publicity and education. Patients with acute pancreatitis have a serious condition and complicated clinical manifestations, such as abdominal pain, nausea and vomiting, fever, abdominal distension and so on. Therefore, in the course of treatment, gastrointestinal decompression, fasting, water fasting, nutritional rehydration and other treatments are adopted. However, during the treatment period, patients often experience anxiety, mental tension and fear, so during the personalized whole-course intervention, nurses need to do a good job of psychological care, strengthen communication with patients and their families, tell them about the disease and improve patients' awareness of the disease. Mainly from the treatment program, treatment success cases and other aspects to explain, so as to help patients build up treatment confidence, effectively reduce the psychological pressure and burden of patients, so that they can actively cooperate with the treatment and nursing work, thereby improving the treatment effect. In addition, considering that there are great differences in the living environment and cultural background of different patients, there will also be differences in their knowledge and understanding of the disease. At this time, personalized whole-course intervention needs to be combined with the actual situation of patients to carry out admission education and publicity for patients, and carefully explain the hospital treatment equipment, environment, programs and successful cases for patients. Then, it makes specific analysis according to the actual situation of the patients, formulates corresponding treatment and nursing programs, and informs the patients and their families so that they can master some effective nursing interventions, which can also further improve the nursing effect.

(2) Medication nursing. When using octreotide for the treatment of patients with acute pancreatitis, the nursing staff must ensure that the injected somatostatin is ready-to-use, and the dosage should also ensure its accuracy, the continuous pump drip rate can be controlled to 5 ml/h (0.25 mg/h), and it needs to be replaced 12 hours during the use period, the replacement time should not be greater than 5 minutes. In addition, it is also necessary to open

another venous channel for patients during the treatment, so as to infuse nutrients for patients, and strengthen the communication with patients and their families, so that they can understand the specificity of somatostatin drugs and cannot adjust the drip rate at will.

(3) Blood glucose monitoring and disease observation. During the treatment of patients with acute pancreatitis with octreotide, nurses also need to strengthen close observation of patients' condition and symptoms, such as patient's temperature, breathing, pulse, blood pressure, etc., especially when patients continue to pump somatostatin, they should strengthen observation and inquiry. Once it is found that patients have hypoglycemic reactions such as palpitation, cold sweat, trembling, fatigue, palpitation, etc., it is necessary to do a good job of monitoring peripheral blood glucose. In the process of blood glucose monitoring, if the blood glucose level of patients is less than 3.9 mmol/L, it is necessary to give 10% glucose intravenous drip or 50% glucose intravenous injection in combination with the actual situation of patients, usually 5-10 minutes can be relieved. In addition, considering that patients are fasting and water-deprived at the beginning of treatment, they cannot be given oral sugary foods and drinks during the nursing process, so dietary control needs to be done. Night is a high stage of hypoglycemia. During this period, nurses must pay more attention to it. In the early stage of medication and in the early morning, patients need to be asked about the actual situation every hour. At the same time, the patient's peripheral blood glucose is monitored once, so that the early symptoms of hypoglycemia can be detected as early as possible, and then treated in time, so as to effectively reduce the occurrence of adverse reactions. In addition, it needs to be noted that hypoglycemic symptoms also vary from person to person. Although some patients have a series of hypoglycemic symptoms, their monitoring results of peripheral blood glucose show in the normal range, so after excluding these reasons, hypoglycemic treatment must be carried out in time, so as to effectively improve the adverse effects of this situation on the treatment effect of patients.

(4) Perform the adjustment of intravenous infusion. In order to ensure the efficacy of medication and nutrition supply for patients with acute pancreatitis, in the process of personalized whole-course care, it is usually necessary to construct two venous pathways for patients, one is for continuous pump drip of somatostatin, the other is for infusion of other fluids. Considering that hypoglycemia mostly occurs in the early stage of medication, early morning and other stages, so in the first 2 hours and early morning of somatostatin pump drip, another group of intravenous access to give 10% glucose, energy mixtures or other nutrients infusion, and when infusion must ensure the rationality of intravenous infusion adjustment, so as to effectively reduce the occurrence of patients with hypoglycemia and other conditions.

(5) Posture and preventive nursing. On the one hand, during the nursing process, nurses need to ensure that the ward environment is clean and tidy, and the air also needs to maintain freshness and circulation. Considering that patients are in bed rest posture during the treatment period, patients need to maintain a good posture during the nursing process, while assisting patients to complete bending, knee-bending lateral position and other postures, so as to effectively reduce the pain level of patients. On the other hand, in the process of individualized whole-course intervention, we also need to do a good job of preventive care, after all, the key to the nursing of hypoglycemic complications is to prevent these two words. Considering that most patients with hypoglycemia will have a premonitory reaction, medical staff must strengthen the close observation and observation of patients' condition, and advise patients to strictly follow the doctor's advice to use a blood glucose meter to measure blood glucose changes. If patients have hypoglycemia, they need to inform the doctor immediately, then supplement the glucose liquid, and strengthen the treatment of patients with hypoglycemia-related symptoms, so that early detection and early treatment can be achieved.

Observational indicators and criteria for determining efficacy

Efficacy criteria: If the clinical symptoms and signs of patients have disappeared within 3 days after treatment, and the amylase in urine has returned to normal, it is indicated as significant; if the symptoms and signs of patients have returned to normal within 4-8 days after treatment and adjustment, it is indicated as effective; if the symptoms and signs of patients disappear after

more than 8 days of treatment, it is indicated as ineffective.

The occurrence of hypoglycemia in the two groups was observed and compared. If the patients had hypoglycemia symptoms such as palpitation, fatigue, hand shaking, hunger, cold sweat, pale complexion, or the peripheral blood glucose was less than 3.9 mmol/L, the patients had hypoglycemia.

The occurrence of adverse reactions after nursing was observed and compared between the two groups, mainly including nausea and vomiting, dizziness, facial flushing, etc.

Two groups of patients were investigated for nursing satisfaction, and self-made satisfaction questionnaire of our hospital was used for the investigation. If the score was more than 80, it was very satisfied. If the score was 79-60, it was generally satisfied. If the score was below 60, it was not satisfied. The nursing satisfaction of the two groups was compared.

Statistical analysis

SPSS 21.0 statistical software was used for statistical analysis. Normally distributed measurement data were expressed as mean standard deviation, t-test and one-way ANOVA were applied, non-normal distribution measurement data were expressed as median (interquartile distance), Mann-Whitney rank sum test was applied, counting data were tested by 2 test, and correlation analysis was performed by multivariate linear regression analysis. Data results were expressed as mean standard deviation and median. The difference was statistically significant with P<0.05.

RESULTS

Comparison of clinical effect between two groups of patients

The total effective rate was 73.33% in the control group and 96.67% in the intervention group. There was a significant difference in data between the intervention group and the control group (P < 0.05). See Table 1 below for details.

Table 1
Comparison of clinical therapeutic effect between two groups of patients

Group	Cases	Markedly effective	Effective	Ineffective	Total effective rate
Control group	30	10	12	7	73.33
Intervention group	30	20	9	1	96.67
P value	-				<0.05

Comparison of hypoglycemia in two groups

The incidence of hypoglycemia was 26.67% in the control group and 3.33% in the intervention group. The difference between the control group and the intervention group was statistically significant (P < 0.05). See Table 2 below for details.

Table 2
Comparison of occurrence of hypoglycemia between two groups

Group	Cases	Cases	Proportion
Control group	30	8	26.67
Intervention group	30	1	3.33
P value	-		<0.05

Comparison of adverse reactions between the two groups

The incidence of adverse reactions was 36.67% in the control group and 6.67% in the intervention group. The difference between the control group and the intervention group was statistically significant (P < 0.05). See Table 2 below for details.

Table 3
Comparison of adverse reactions between two groups

Group	Cases	Nausea and vomiting	Dizzy	Flushed complexion	Total adverse rate
Control group	30	4	3	4	11（36.67）
Intervention group	30	0	1	1	2（6.67）
P value	-				<0.05

Comparison of nursing satisfaction between two groups

The nursing satisfaction of the patients in the control group was 79.00%, and that of the intervention group was 96.67%. The difference between the intervention group and the control group was statistically significant (P < 0.05). See Table 1 below for details.

Table 4
Comparison of nursing satisfaction between two groups

Group	Cases	Very satisfied	General satisfaction	Satisfaction	Degree of satisfaction
Control group	30	9	12	9	79.00

Intervention group	30	21	8	1	96.67
P value	-				<0.05

DISCUSSION

Acute pancreatitis refers to a series of inflammatory reactions, such as pancreatic tissue edema, hemorrhage and necrosis, which are caused by various factors to activate pancreatic enzymes in the pancreas. The illness of the patients can be divided into severity, and the clinical symptoms are mainly fever, nausea and vomiting, and increased blood trypsin, which have a significant impact on the physical and mental health of the patients. Clinically, the pathogenesis of severe acute pancreatitis is more complex, such as diabetes mellitus combined with acute pancreatitis and multiple organ failure caused by overeating, and the disease does not have any obvious clinical symptoms in the early stage, which is easy to be misdiagnosed, so early death is also very common. The results of a large number of clinical trials show that blood glucose control can effectively alleviate the development rate of acute pancreatitis patients and provide more treatment time for patients. Therefore, when treating patients with acute pancreatitis, how to effectively control blood glucose and keep blood glucose within a stable range has become a more important issue in the treatment process.[2,6,7]

In the clinical treatment of patients with acute pancreatitis, continuous pump somatostatin therapy is usually used, and octreotide is a commonly used drug. Somatostatin itself is a synthetic cyclic fourteen-amino acid peptide. This drug can inhibit the secretion of growth hormone, insulin and glucagon in patients, thereby effectively reducing intrapancreatic pressure, protecting pancreatic cells in patients to a certain extent, and also effectively inhibit the secretion of gastric acid, pepsin, gastrin, etc., so as to reduce visceral bleeding in patients. It has good analgesic effect. However, in the process of use, octreotide micropump is continuously pumped into the circulatory system of the body to inhibit the secretion of glucagon, which can easily lead to the occurrence of symptoms such as hypoglycemia, and once hypoglycemia occurs, if the patient cannot be treated in time, it will cause coma and even endanger the patient's life. Therefore, when using octreotide to treat patients with acute pancreatitis, how to effectively prevent and treat hypoglycemia has become the key in the treatment, and effective nursing intervention can further reduce the occurrence of hypoglycemia. Moreover, if hypoglycemia occurs, the patients can also be treated and intervened in time, thus effectively avoiding the irreversible damage caused by hypoglycemia to the patient's body. In addition, some patients suffer from long-term drug treatment, psychological stress and heavy burden. If timely nursing intervention is not available at this time, it will directly affect the treatment effect. Therefore, it is very important to do hypoglycemic nursing intervention well when using octreotide to treat patients with pancreatitis.[4,8,9]

Research results show that when hypoglycemia occurs after continuous infusion of somatostatin in patients with acute pancreatitis, timely health education, medication care, psychological care, blood glucose monitoring, dietary guidance and other nursing work can greatly improve the therapeutic effect of octreotide and better promote the early recovery of patients. In the clinical treatment of patients with acute pancreatitis, usually two venous pathways are constructed for patients, one continuous pump drip of octreotide, and one input of other therapeutic fluids, such as nutritional support, circulation improvement, anti-infection and so on. Because most patients with acute pancreatitis need fasting and water deprivation according to their doctor's advice at the beginning of treatment, when using octreotide for treatment, they also need to calculate the nutrient mixture according to the patient's weight and body mass in order to clarify the part of the infused fluid. These treatment fluids are usually concentrated in the daytime to complete, and at night, octreotide intravenous infusion alone is used for treatment. So, this stage is also the stage of high incidence of hypoglycemia, and nurses must strengthen their care during this period. Personalized whole-course nursing intervention is a very effective means of nursing, which advocates patient-centered nursing intervention during the period of nursing and combined with the actual situation of patients, so as to effectively improve the treatment effect of patients. During the nursing period, the nursing staff will adjust the order of intravenous fluid infusion appropriately and construct a third venous access for the patients, so as to ensure that the patients can maintain the 24-hour supply of nutrient energy mixture while infusing octreotide, effectively reduce the incidence of hypoglycemia

and other phenomena, and improve the safety of octreotide medication.[10-12]

The results of this study showed that the total effective rate was 73.33% in the control group and 96.67% in the intervention group. There was a significant difference in data between the intervention group and the control group ($P < 0.05$). From this result, we can find that strengthening personalized whole-course nursing intervention during octreotide treatment can further improve the therapeutic effect. On the one hand, continuous pumping of octreotide can effectively increase gastrointestinal peristalsis in patients. In this way, it can relieve vomiting, improve abdominal distension, anal exhaust and defecation and other clinical symptoms, but because octreotide micropump continuously pumped into the circulatory system will inhibit the secretion of glucagon to a certain extent, at this time it is easy to trigger hypoglycemia, affecting the treatment effect. During this period, patients in the intervention group had a personalized whole-course intervention, through the various nursing units in the hospital, as well as the drug intervention, dietary intervention, monitoring of blood glucose changes and formulation of hypoglycemia prevention program for patients and their families, so the occurrence of hypoglycemia was effectively reduced, and the final clinical treatment effect of the intervention group was better than that of the control group. In addition, the incidence of hypoglycemia was compared between the two groups. The results showed that the incidence of hypoglycemia was 26.67% in the control group and 3.33% in the intervention group. The difference between the control group and the intervention group was statistically significant ($P < 0.05$). Thus, the individualized whole-course intervention can play a good nursing effect for the clinical octreotide application, improve the treatment safety of patients, and let patients feel the quality of nursing service in the process of individualized nursing and one-to-one targeted nursing. Coupled with the supply of 24h nutrient energy mixture, it can naturally effectively reduce the occurrence of hypoglycemia in the intervention group, and effectively avoid the harm caused by hypoglycemia to the patient's body. In addition, the results of this study also showed that the incidence of adverse reactions was 36.67% in the control group and 6.67% in the intervention group. There was a significant difference in the data between the control group and the intervention group compared with the control group ($P < 0.05$). This result indicates that the personalized whole-process intervention during octreotide treatment of patients with pancreatitis can also effectively reduce the incidence of adverse reactions. The reason for this is that during the nursing intervention, the nurses carried out Drug Administration nursing and intervention, dietary care for the patients, while paying close attention to the actual situation of the patients, and combining the actual situation of the patients to give appropriate drug doses, so as to effectively maintain the daily nutritional needs of the patients. In addition, normal infusion speed is used to effectively stabilize the water and electrolyte balance, which can effectively avoid the occurrence of blood return or encounter caused by uneven infusion speed, malnutrition, etc. In addition, effective postural care and preventive care can further reduce the incidence of complications and adverse reactions in patients with acute pancreatitis. Therefore, the final results showed that the incidence of adverse reactions in the intervention group was significantly lower than that in the control group. In addition, in the process of individualized whole-course nursing, the nursing staff also carried out targeted and individualized psychological nursing and health education and nursing for the patients, which to a certain extent improved the patients' awareness of the disease, and effectively alleviated the patients' negative emotions such as irritability, communication and restlessness. Help patients build up treatment confidence, so that they can be treated with a positive and good attitude, so as to effectively improve patient treatment compliance and cooperation, promote patient recovery, and improve patient care satisfaction. It is precisely because of this, the results of this study showed that the nursing satisfaction of patients in the control group was 79.00%, and that of patients in the intervention group was 96.67%. There was a significant difference in data between the intervention group and the control group ($P < 0.05$). Therefore, in the treatment of patients with acute pancreatitis, not only octreotide should be used for continuous pump treatment, but also hypoglycemia should be realized during the treatment, and personalized nursing intervention should be done. Through a

series of nursing methods, such as psychological nursing, health education, medication nursing, blood glucose detection, etc., to further improve the monitoring of patients' conditions, while timely rehydration work, so as to effectively improve patients' treatment coordination, reduce the occurrence of hypoglycemia and adverse reactions.[13-15]

In conclusion, the principle of non-surgical treatment in the treatment of patients with acute pancreatitis is to minimize pancreatic secretion, prevent infection and multiple organ dysfunction. Octreotide, as a synthetic octapeptide derivative of natural somatostatin, has the pharmacological characteristics of natural somatostatin, so its application in the treatment of patients with acute pancreatitis can effectively alleviate the clinical symptoms of patients. In addition, individualized whole-course intervention can reduce the occurrence of hypoglycemia and other conditions during octreotide treatment, thereby effectively improving the clinical care and treatment effect, and providing a good guarantee for effective treatment of patients.[15-17,18]

CONCLUSION

In conclusion, octreotide has a good effect in the treatment of acute pancreatitis patients. If personalized whole-course intervention can be given to patients with acute pancreatitis who receive 24-hour octreotide pump drip, the treatment effect, nursing satisfaction, adverse reactions and hypoglycemia can be further improved, and the patient's condition can be effectively maintained stable and the patient can recover as soon as possible. Therefore, when treating AP patients, octreotide must be actively applied to inhibit the secretion of pancreatic enzymes, reduce the intrapancreatic pressure, reduce the extravasation of pancreatic juice, and at the same time strengthen the attention of patients with hypoglycemia. Individualized whole-course nursing can detect, intervene and deal with hypoglycemia as early as possible, so as to effectively alleviate patients' pain, improve treatment effect and patient satisfaction, and ultimately effectively improve drug safety and feasibility.

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