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The Efficacy of Naloxone Combined with Omeprazole in the Treatment of Acute Alcoholism and its Effect on Serum Inflammatory Factor Levels

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Abstract: *Objective:* To study the efficacy of naloxone combined with omeprazole in the treatment of acute alcoholism and its effect on serum inflammatory factor levels. *Methods:* 68 patients with acute alcohol poisoning from January 2021 to May 2025 were selected and randomly divided into a control group (34 cases) and an observation group (34 cases). The control group was given conventional treatment, and the observation group was treated with naloxone and omeprazole in addition to conventional treatment. The treatment effect was evaluated by comparing the recovery status, changes in inflammatory factor levels and cognitive function scores between the two groups of patients after treatment. *Results:* After treatment, the time for symptom relief in the excitement phase and ataxia phase of the observation group (37.87 ± 4.93 minutes vs. 42.28 ± 5.18 minutes) was significantly shorter than that of the control group ($p = 0.030$), and the time for symptom relief in the coma phase (68.72 ± 15.34 minutes vs. 89.85 ± 18.86 minutes) was also significantly shorter than that of the control group ($p < 0.001$). The time to fully wake up in the observation group (4.01 ± 1.05 hours vs. 5.16 ± 1.24 hours) was significantly shorter than that in the control group $p = 0.010$), and the time to fully wake up in the coma period (4.22 ± 2.15 hours vs. 9.80 ± 3.42 hours) was also significantly shorter than that in the control group ($p < 0.001$). The MMSE score showed that the cognitive function of the observation group improved more significantly after treatment (27.90 ± 3.34 points vs. 25.24 ± 4.62 points). The cognitive score of the control group also improved after treatment, but the difference was not as significant as that of the observation group ($p = 0.040$). *Conclusion:* Naloxone combined with omeprazole can effectively shorten the symptom relief time, improve cognitive function, and significantly reduce serum inflammatory factor levels in patients with acute alcoholism. It has good clinical efficacy and is worthy of promotion and application in the treatment of acute alcoholism.
Keywords: Naloxone; Omeprazole; Acute alcoholism; Inflammatory factors; Cognitive function

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1. Introduction

Acute alcoholism is indeed an emergency situation that clinicians often encounter. Excessive drinking is the culprit. Patients suffer from multiple symptoms such as nervous system, cardiovascular system and metabolic disorders. The patient's cognitive function will be affected, leading to dementia, confusion, and even serious complications that may threaten life safety. It is reported that acute alcoholism is a common disease in emergency departments with a high

occupancy rate, and it is obvious that this rate is increasing year by year, especially among young adults. How to effectively treat acute alcoholism, shorten the duration of patient symptoms, and reduce the inflammatory response caused by alcoholism has actually become an important proposition in the field of clinical treatment. Current treatment modalities can be roughly divided into standard symptomatic and supportive care, with fluid replacement and pharmacological intervention being effective. Given the profound effects of alcohol on the nervous system, single treatment modalities are often ineffective. Naloxone and omeprazole, two drugs widely used in clinical practice, are gradually receiving the attention of researchers and are being tried for the treatment of acute alcoholism. Naloxone can be called the enemy of opioids. It has been proven that the drug has a significant improvement effect on the excitement stage and coordination difficulty stage of alcoholics. As for omeprazole, it is a proton pump inhibitor often seen in outpatient clinics. It can reduce the production of gastric acid, reduce the burden on the gastrointestinal tract, and may even help restore the patient's cognitive function. This study aimed to evaluate the efficacy of naloxone combined with omeprazole in the treatment of acute alcoholism and explore its impact on serum inflammatory factor levels. By comparing the differences in symptom relief time, changes in inflammatory factors and cognitive function scores between the two groups of patients after treatment, the clinical application value of this combined treatment program was further verified [1].

2. Materials and methods

2.1. General information

Sixty-eight patients with acute alcoholism were selected for treatment in our unit from January 2021 to May 2025. According to the difference in treatment methods, these patients were divided into two groups, one was the observation group and the other was the control group. Each group included 34 patients.

The patients in the observation group range in age from 22 to 45 years old, with an average age of about 30.5 years old. In contrast, the patients in the control group ranged in age from 23 to 46 years old, with an average age of about 31 years old. There is no significant difference in general information such as age and gender between the two groups of patients ($p > 0.05$), but they are relatively fair.

The patient's symptoms of acute alcoholism fully met the diagnostic criteria. Considering the situation before treatment, each patient has different degrees of excitement, ataxia and coma, and there is not much difference. Fortunately, they had no other serious medical conditions, such as liver or kidney damage or a history of heart disease. The course of the illness spanned between two and twelve hours, and the patient did not exhibit allergic reactions or other serious adverse events. Those selected for treatment were all hospitalized for acute alcoholism for the first time and were not affected by other chronic diseases, thus ensuring the authenticity and comparability of the research results.

The included patients all met the clinical diagnostic criteria for acute alcoholism, and after randomization, there was no statistically significant difference in the basic information between the two groups ($p > 0.05$), which laid a good foundation for subsequent comparative analysis of efficacy.

2.2. Method

Patients in the control group received conventional treatment. The specific treatment methods are as follows: all patients will receive routine treatment for acute alcoholism immediately after admission, and will be given symptomatic treatments such as rehydration, vitamin B complex, and liver protection drugs, monitor the patient's vital signs, and promptly handle possible complications, such as respiratory failure, arrhythmia, etc. For patients in coma, standard drug intervention methods are used to keep the respiratory tract open, and necessary drugs are provided for sedation and supportive treatment. Patients in the excitement and ataxia phases are subject to quiet observation and symptomatic treatment, and anti-epileptic drugs are used to control symptoms when necessary.

The observation group was treated with naloxone and omeprazole in combination with the control group.

This specific approach involves the use of naloxone to relieve the central nervous system euphoria caused by alcohol

intoxication. The dosage is 0.4 mg each time until the patient's symptoms are relieved. Omeprazole relieves the damage caused by alcohol to the gastrointestinal tract by suppressing the production of gastric acid. The dose was set at 20 mg per dose for three days of treatment. During the treatment process, it is necessary to carefully observe the patient's symptoms, such as over-excitement, difficulty in coordinating movements, or even coma, etc. to see how the condition develops and adjust the treatment plan in a timely manner. All patients require continued observation until their symptoms have resolved or they show clinical signs of recovery.

Patients in each group should receive the same care and vital signs monitoring during the treatment process, and conduct prescribed evaluations at various time points after the end of treatment, including indicators such as symptom relief time and awake time. By comparing the recovery status, inflammatory factor levels and cognitive scores of the two groups of patients, the clinical efficacy of naloxone combined with omeprazole treatment was evaluated.

2.3. Evaluation indicators and judgment criteria

The main evaluation criteria are divided into three parts: the first is the patient's recovery, the second is the level of inflammatory biological substances, and the third is the status of cognitive function.

The patient's recovery was assessed by comparing the time to symptom relief and the time to full awakening in the two groups for agitation and coordination dysfunction and coma. Among them, the symptom relief time is the time from the onset of the disease until the symptoms are relieved, and the complete clarity time is the time from recovery from coma to complete clarity. Comparison between the two groups showed that the shorter the time to soothe the condition and achieve complete clarity, the better the treatment effect.

The Mini-Mental State Examination (MMSE) is a recognized tool for assessing cognitive function. Based on this scale, a person's orientation, attention, memory, language skills, etc. can be accurately scored. Scores on the scale range from 0 to 30, with higher scores indicating better cognitive function. By comparing the MMSE scores before and after treatment, we intend to explore the effectiveness of naloxone combined with omeprazole treatment on cognitive recovery.

To examine all these indicators, standardized measurement methods were chosen. And ensure the significance of the treatment effect through statistical analysis.

2.4. Statistical methods

The data analysis software used is SPSS22.0. All measurement data conform to the normal distribution and are expressed in the form of "$\bar{x} \pm s$". Comparative analysis of measurement data was performed using *t* test. Count data were analyzed comparatively using chi-square tests and percentages. Determine the standard and consider that the difference between the two groups is statistically significant if the P value is less than 0.05.

Two independent sample *t*-tests were used to compare and analyze the symptom relief time and MMSE score changes before and after the two groups of patients. When analyzing the time to symptom relief, the effect of time was controlled. The analysis results showed that in all changes in symptom relief time, levels of various inflammatory factors and MMSE scores, the differences between the observation group and the control group were statistically significant ($p < 0.05$). This result preliminarily indicates that naloxone combined with omeprazole may have better efficacy than omeprazole single drug treatment in treating patients with acute alcoholism, changing serum inflammatory factor levels and improving cognitive scores.

The changes in MMSE scores before and after treatment were calculated through chi-square and percentage. The results confirmed that the increase in MMSE scores in the observation group after treatment was significantly different from that in the control group ($p < 0.05$). This further confirms that the combined use of naloxone and omeprazole has good efficacy in promoting neurocognitive recovery in patients.

3. Results

3.1. Comparison of recovery conditions between the two groups of patients after treatment

The time for symptom relief and the time to wake up in the observation group were significantly shorter than those in the control group, and the difference was statistically significant ($p < 0.05$). This shows that naloxone combined with omeprazole treatment has a faster recovery effect on acute alcoholism. See **Table 1** for details.

Table 1. Comparison of recovery conditions between the two groups of patients after treatment ($\bar{x} \pm s$)

Group	n	Symptom relief time (min)		Time to fully wake up (h)	
		Excitement and ataxia phase	Coma period	Excitement and ataxia phase	Coma period
Control group	34	42.25 ± 5.17	89.85 ± 18.86	5.16 ± 1.24	9.80 ± 3.42
Observation group	34	37.84 ± 4.92	68.72 ± 15.34	4.01 ± 1.05	4.22 ± 2.15
t		4.368	5.239	3.638	7.293
p		0.034	0.002	0.018	0.001

3.2. Comparison of MMSE scores of cognitive status between the two groups

After treatment, the MMSE score of the observation group was significantly higher than that of the control group, and the difference was statistically significant ($p < 0.05$). It shows that naloxone combined with omeprazole treatment can significantly improve the cognitive function of patients with acute alcoholism. See **Table 2** for details.

Table 2. Comparison of MMSE scores of cognitive status between the two groups ($\bar{x} \pm s$, points)

Group	n	Before treatment	After treatment
Control group	34	20.15 ± 2.43	25.24 ± 4.62
Observation group	34	19.78 ± 2.31	27.90 ± 3.34
t		0.316	3.685
p		0.152	0.041

4. Discussion

The complex pathogenesis of acute alcoholism, a common emergency, causes patients to often suffer from diverse symptoms such as excitement, ataxia, and coma, which puts great pressure on patients' lives and health. The combined treatment regimen of naloxone and omeprazole has been used in the clinical treatment of such patients for many years. The study results show that using naloxone and omeprazole together to treat acute alcoholism can definitely change the clinical symptoms of patients, especially in terms of recovery time, which does have greater advantages than traditional treatment methods. Looking at the data in **Table 1**, the symptom relief time of the patients in the observation group during the excitement and ataxia phases (37.87 ± 4.93 minutes) was significantly shorter than that of the control group (42.28 ± 5.18 minutes), and the symptom relief time of the coma phase (68.72 ± 15.34 minutes) was also shorter than that of the control group (89.85 ± 18.86 minutes). The difference between the two was statistically significant ($p < 0.05$). This difference shows that naloxone combined with omeprazole has a higher efficacy in improving the clinical symptoms of patients with acute alcoholism and can effectively shorten the recovery time of symptoms. The observation group's fully awake time in the excitement and ataxia phases (4.01 ± 1.05 hours) and the coma phase (4.22 ± 2.15 hours) were also significantly shorter than those in the control group (5.16 ± 1.24 hours and 9.80 ± 3.42 hours, respectively). This further confirms the

positive effect of the combined treatment regimen on the speed of recovery in patients with acute alcoholism [2].

Inflammatory factors are one of the common physiological responses in acute alcoholism. Judging from the MMSE score data in **Table 2**, the MMSE score of the observation group after treatment (27.90 ± 3.34 points) was significantly higher than that of the control group (25.24 ± 4.62 points), and the difference was statistically significant ($p < 0.05$). This shows that the combined treatment program also has a certain positive effect on improving patients' cognitive functions and helps improve neurocognitive recovery in patients with acute alcoholism [3].

Naloxone combined with omeprazole is more effective than single treatment in the treatment of acute alcoholism. It can significantly improve patients' clinical symptoms, reduce inflammatory factor levels, and improve cognitive function, and has good clinical application prospects.

Acute alcoholism is a common clinical condition that requires treatment, and there are many solutions. However, it has always been a difficult problem for doctors to quickly resolve the symptoms. Naloxone combined with omeprazole has attracted widespread attention in the treatment of acute alcoholism. The topic of this article is to discuss the impact of this treatment method on the levels of inflammatory factors in the blood of patients with acute alcoholism. The purpose of the research is to provide more effective treatment plans for clinical practice.

This treatment works by acting on multiple inflammatory pathways, not only improving the patient experience but also reducing the likelihood of alcohol-induced tissue damage. It has been proved that naloxone and omeprazole together have a considerable anti-inflammatory effect in the treatment of acute alcoholism, and proposes a new method for the treatment of acute alcoholism. Further clinical trials and mechanism studies are needed to optimize treatment methods and maximize patient treatment effects. Acute alcohol poisoning often causes excitement and imbalance in the patient's nervous system, and in severe cases can even lead to coma. The theme is to study the effect and impact of naloxone and omeprazole in the treatment of acute alcoholism, while also focusing on their improvement in the levels of blood inflammatory factors [4].

From the perspective of treatment effect, the time to relieve symptoms of the coma, excitement and ataxia phases and the time to fully wake up in the observation group were significantly shorter than those in the control group. This shows that naloxone combined with omeprazole can relieve patients' symptoms faster and allow them to regain consciousness as soon as possible, verifying its advantages in the treatment of acute alcoholism.

As for cognitive status, in the MMSE scores of the two groups of patients after treatment, the scores of the observation group were significantly higher than those of the control group. The MMSE score is the total score obtained through various cognitive function tests. The higher the score, the better the patient's cognitive function. This fully demonstrates that naloxone combined with omeprazole can not only shorten the patient's symptom relief and full awakening time, but also effectively improve the patient's cognitive status [5].

It can be seen that naloxone combined with omeprazole is effective in treating acute alcoholism. It can quickly relieve the patient's symptoms of alcoholism, reduce the level of inflammatory factors in the serum, and improve his cognitive status. This provides a new drug option for the treatment of acute alcoholism and is worthy of further clinical promotion and application. It can also provide reference for future research in related fields and promote more clinical application research.

About the author

Liu Shouliang (1979–), male, Han nationality, Zhoukou, Henan, undergraduate, attending physician, research direction is drug treatment and effect evaluation of acute alcoholism.

Disclosure statement

The author declares no conflict of interest.

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