Clinical Efficacy of Posterior Nasal Neurotomy in the Treatment of Allergic Rhinitis

Zhou Wang[1], Dong Lin[2*]

1. Department of Otolaryngology, Head and Neck Surgery, Shaanxi Provincial People's Hospital, Xi'an 710000, China.

2. The Quality Control Office of Shaanxi Provincial Second Rehabilitation Hospital, Xi'an 710000, China.

Abstract: Objective: To analyze the clinical efficacy of posterior nasal neurotomy in the treatment of allergic rhinitis. Method: 100 patients with allergic rhinitis who received treatment at Shaanxi Provincial People's Hospital from January 2021 to January 2022 were selected as the study subjects. According to different treatment methods, patients were divided into an experimental group and a control group. There were 50 patients in each group, of which the control group was treated with drug therapy, including nasal spray of Siqing Bio rational Sea Salt Water (twice a day), nasal Fluticasone propionate nasal spray (once a day), and oral lupatadine fumarate tablets (10mg each time, once a day). The experimental group of patients underwent posterior nasal neurotomy combined with medication for treatment. After obtaining the patient's consent, track the VAS, RQLQ, and SNOT-20 scores of the patient before treatment, 3 months after treatment, and 6 months after treatment. Observe the postoperative complications in the experimental group and investigate the occurrence of adverse reactions to drugs in both groups of patients. Results: The main effect differences between VAS, RQLQ, and SNOT-20 scoring groups and time points were statistically significant (P The RQLQ and SNOT-20 scores were lower than before treatment (P<0.05). At the same time, the scores of the experimental group compared with the control group were lower than those of the control group. The experimental group will lose their sense of smell and experience complications such as atrophic rhinitis within two weeks after surgery. During drug treatment, there was no statistically significant difference in the total incidence of adverse reactions between the two groups of drugs. Conclusion: Posterior rhinotomy can alleviate clinical symptoms and further improve the quality of life of patients with allergic rhinitis. The short-term treatment effect is good, and no serious complications have occurred.

Keywords: Allergic Rhinitis; Drug Therapy; Posterior Nasal Neurotomy; Nasal Conjunctivitis Quality of Life Scale; Nasal and Sinus Outcome Test

1. Data and Methods

1.1 General information

100 patients with allergic rhinitis who received treatment in our hospital from January 2021 to January 2022 were selected as the study subjects. According to different treatment methods, they were divided into experimental group and control group. There are 50 patients in each group, 30 males and 20 females in the experimental group. The age ranged from 23 to 41 years, with an average of (30.12 ± 3.24) years; The course of disease ranged from 1 to 7 years, with an average of (2.32 ± 1.21) years; In the control group, there were 27 males and 23 females, aged from 27 to 50 years, with an average age of (36.15 ± 5.72) years; The course of disease ranged from 1 to 8 years, with an average of (4.13 ± 2.23) years; 5 cases were

complicated with asthma. There was no significant difference between the two groups in gender, age, course of disease, and proportion of patients with asthma (P>0.05). This study was supported and approved by the hospital, and communication with the patient was completed before the experiment began. The experimental work was carried out with the consent of the patient and their family members.

1.2 Inclusion and Exclusion Criteria

Inclusion criteria: First, the patient meets the guidelines for the diagnosis and treatment of allergic rhinitis. Combined with relevant diagnostic indicators, determine whether the patient meets the requirements of the experimental study. Secondly, determine the clinical manifestation of the patient, analyze the patient's clinical situation, and determine whether they have nasal itching, sneezing, nasal secretion hyperactivity, and nasal mucosal swelling. Third, the patient was determined to have allergic rhinitis, and the condition continued to develop. The patient received surgical treatment for the first time. Fourth, the relevant preparation materials are complete, and the patient has signed an informed consent form. The patient does not have any other major diseases.

Exclusion criteria: First, the patient's physical condition is poor and cannot withstand posterior nasal neurotomy. Secondly, people with drug allergies or other diseases cannot participate in this study. Third, patients with severe lesions in the lungs and kidneys cannot participate in the study. Finally, analyze the patient's disease history, such as the inability of patients with psychiatric disorders to participate in the study.

1.3 Method

Control group: the patients in the control group were given drug treatment in the way of nasal spray of Siqing Biological Sea Salt Water (twice a day), Fluticasone Propionate Nasal Spray (once a day), and Lupatadine Fumarate Tablets (10mg each time, once a day). The patient can stop taking the medication after one month, but it is necessary to determine whether to continue taking the medication based on the patient's later symptoms. The judgment standard is the patient's actual tolerance to determine whether to continue taking the medication.

Study group: The patient received posterior nasal neurotomy combined with drug treatment. The patient was placed in a supine position. Before the surgery, general anesthesia was administered to the patient, and routine intubation was performed. The nasal mucosa was constricted with 1: 1000 adrenaline saline. A longitudinal incision was made under nasal endoscope at about 0.5 cm in front of the tail of the middle turbinate, exposing the ethmoidal crest of the palatine bone, and the ethmoidal crest was removed with bone rongeurs. At this time, the neurovascular bundle separated from the sphenoid foramen was visible, During surgery, special attention should be paid to avoid damaging blood vessels and causing bleeding. Then, the posterior nasal nerve, sphenoid mandibular artery, and their branches were separated using a micro hook needle, and the posterior nasal nerve was resected. After sufficient hemostasis of the operative cavity with a medical cotton ball, the middle nasal canal mucosal flap was repositioned. The middle nasal canal was filled with an expanded sponge, and antibiotics were injected intravenously for 1-2 days after surgery. After 3 days, the sponge was removed. Two weeks after surgery, the drug treatment method was the same as that of the control group.

1.4 Observation indicators

① VAS was used to assess the severity of nasal symptoms before treatment, 3 months after treatment, and 6 months after treatment, with a total score of 10 points. The higher the score, the more severe the symptoms RQLQ was used to assess the quality of life of patients before treatment, 3 months after treatment, and 6 months after treatment, including 7 items: nasal symptoms, eye symptoms, non nasal eye symptoms, activity limitations, emotional disorders, actual difficulties, and sleep disorders. Each item was scored 0 to 6 points, and the higher the score, the lower the quality of life SNOT-20 was used to assess the improvement of symptoms in patients before, 3 months after treatment, and 6 months after treatment, including 4 items of nasal symptoms, related symptoms, emotional outcomes, and sleep disorders. There were 20 items, with

each item scoring 0 to 4 points, with a total score of 80 points. The higher the score, the more severe the symptoms The incidence of postoperative olfactory loss, atrophic rhinitis, and cerebrospinal fluid rhinorrhea in the study group was recorded; Observe and compare the occurrence of adverse reactions (dizziness, dry pharyngitis, fatigue, dry nose and throat) during drug treatment between the two groups of patients.

2. Results

2.1 Comparison of VAS scores between two groups of patients

The main effect difference between VAS score groups and time points was statistically significant ($P<0.01$), and there was an interaction between groups and time points ($P<0.01$); Before treatment, there was no statistically significant difference in VAS scores between the two groups ($P>0.05$). After 3 and 6 months of treatment, the VAS scores of the two groups were lower than before treatment ($P<0.05$), and the study was lower than the control group ($P<0.05$).

2.2 Comparison of RQLQ scores between two groups of patients

The main effect difference between the RQLQ score groups and time points was statistically significant ($P<0.05$ or $P<0.01$), and there was no interaction between the groups and time points ($P>0.05$); Before treatment, there was no statistically significant difference in RQLQ scores between the two groups ($P>0.05$); After 3 and 6 months of treatment, the RQLQ scores in both groups were lower than those before treatment ($P<0.05$), and the study group was lower than the control group ($P<0.05$).

2.3 Comparison of SNOT-20 scores between two groups of patients

The main effect difference between SNOT-20 score groups and time points was statistically significant ($P<0.01$), and there was an interaction between groups and time points ($P<0.05$); Before treatment, there was no statistically significant difference in SNOT-20 scores between the two groups ($P>0.05$); After 3 and 6 months of treatment, the SNOT-20 scores in both groups were lower than those before treatment ($P<0.05$), and the study group was lower than the control group ($P<0.05$).

3. Discussion

The RQLQ score of patients 3 and 6 months after surgery was only (0.9 ± 0.3) points, confirming that posterior nasal neurotomy can effectively improve the clinical symptoms and improve the quality of life of patients with allergic rhinitis. Some scholars have also found that the overall effective rate of highly selective nasal neurotomy under nasal endoscope for the treatment of moderate to severe allergic rhinitis within 3 months after surgery is 100.0% (50/50), and the overall effective rate after 2 years of follow-up is 96% (48/50), indicating that the clinical efficacy of posterior nasal neurotomy for allergic rhinitis is good. The results of this study showed that the VAS, RQLQ, and SNOT-20 scores in the study group were lower than those in the control group 3 and 6 months after surgery. Similar to the above research results, it again confirmed that posterior nasal neurotomy can effectively alleviate the clinical symptoms of patients with allergic rhinitis, and the effect is superior to conventional drug conservative treatment.

4. Summary

In summary, posterior nasal nerve blockade can significantly alleviate the clinical symptoms of patients with allergic rhinitis. With the continuous improvement of technical level, the short-term efficacy is more accurate. It greatly improves the quality of life of patients. Comparing the risk of complications after treatment with patients' illness, there are still some problems with this technology, and further exploration is needed for long-term efficacy.

References

[1] Yang X, Yang Y, Shan XD, et al. Observation on the efficacy of highly selective nasal nerve blockade under nasal endoscope in the treatment of moderate to severe allergic rhinitis [J]. Journal of Clinical Military Medicine, 2020 (12).

[2] Chen P, Zheng GX. Study on the efficacy of endoscopic posterior nasal neurotomy in the treatment of moderate to severe allergic rhinitis [J]. Shaanxi Medical Journal, 2020 (11).

[3] Liu T, Li P, Meng QX, Huang B, Xie JH.The role of the palatine sheath and sphenopalatine artery in locating the pterygoid canal during pterygoid neurotomy [J]. Journal of Clinical Otolaryngology Head and Neck Surgery, 2020 (07).