



Effects of Early Comprehensive Psychological Interventions on Negative Emotions in Patients with Facial Spasm Undergoing Microvascular Decompression

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Abstract: Purpose: This study was undertaken to assess the effects of early psychological interventions on negative emotions in patients with facial spasm undergoing microvascular decompression. Methods: A total of 164 cases of patients with facial spasm undergoing microvascular decompression were included in the study. They were randomly divided into two groups: the patients in the control group (81 cases) were given conventional nursing care and the patients in the experimental group (83 cases) were given early comprehensive psychological interventions including cognitive therapy, behavior therapy and supportive therapy. All participants were evaluated with the Self-Rating Anxiety Scale (SAS) and the Self-Rating Depression Scale (SDS) before and after the nursing interventions. Results: Before intervention, the SAS and SDS scores of patients in experimental group were 51.70 ± 9.49 and 44.99 ± 10.25 , respectively, they were 50.92 ± 10.25 and 44.27 ± 9.93 in control group. No significant ($p > 0.05$) differences in SAS and SDS scores were found before nursing interventions. After intervention, the SAS and SDS scores of patients in experimental group were 34.33 ± 9.56 and 29.55 ± 7.64 . The SAS and SDS scores were 40.65 ± 12.06 and 35.36 ± 8.66 in control group. Patients receiving early comprehensive psychological interventions got much lower SAS and SDS scores than those in the control group and the differences between them were statically significant ($p < 0.05$). Conclusion: The results from this study and published data support the conclusion that early comprehensive psychological intervention is beneficial to alleviate the negative emotions and promote mental health in patients with hemifacial spasms undergoing microvascular decompression. However, further extensive work will be required to study more in depth.

Keywords: Microvascular Decompression Surgery, Facial Spasm, Early Comprehensive Psychological Intervention, Nursing, Neurosurgery

1. Introduction

Hemifacial Spasm (HFS), also known as facial muscle twitching, is characterized by unilateral contractions of the facial muscles. Though usually considered to be benign, it can lead to functional deficits and a poor quality of life due to social embarrassment for the suffering individual [1]. A recent study reported the prevalence of the disease was 11 per 100,000 total population, with a noticeable female preponderance [2]. Facial muscle spasms may lead to a certain degree of social embarrassment as well as physical and psychological pressure [3] which inevitably generate many

health disturbances, anxiety and depression [4-5]. However, the existing studies paid more attentions to the perioperative nursing of patients with hemifacial spasm [6-8] and less attention to the negative emotional effects caused by disease. Therefore, in this study, we aimed to explore the efficacy of early comprehensive psychological intervention in patients undergoing microvascular decompression. We enrolled patients with HFS, evaluated them with the Self-Rating Anxiety Scale (SAS) and the Self-Rating Depression Scale (SDS). The detailed description of Psychological intervention is as follows.

2. Methods

2.1. Participants

A total of 164 patients of hemifacial spasm undergoing microvascular decompression in department of neurosurgery, Wuhan union hospital, from January 2016 to December 2017 were included in the study. The patients were divided into the experimental group (83 cases) and control group (81 cases) using a randomized, double-blind principle. 47 cases were males and 117 cases were female. Patients aged from 29 to 73 years with an average age of 49.72. There was no significant ($p>0.5$) difference between the two groups in terms of marital status, education level, economic status, occupation, cost of payment, course of disease, affected area, previous treatment, pre-intervention anxiety and depression. The inclusion criteria were as follows: (1) met the diagnostic criteria of hemifacial spasm; (2) aged 18-75 years; (3) had no communication disorders and cognitive impairments; (4) voluntarily agreed with the study and signed a written informed consent form before the study started, (5) not offered any compensation for their participation.

The exclusion criteria were as follows: (1) patients had severe arrhythmia or heart failure diseases; (2) Patients suffered from serious diseases, such as liver failure, kidney failure, respiratory and circulatory failure, cerebral infarction, severe diabetes; (3) Patients already received or were giving Psychotherapy treatments; (4) Patients had mentally disability.

2.2. Research Methods

2.2.1. Control Group

Patients in the control group received conventional preoperative care, postoperative care, psychological care, health education, etc.

2.2.2. Experimental Group

Patients in the experimental group received early comprehensive psychological interventions besides conventional nursing care. We set up a special project team to conduct the psychological intervention. The team included two highly professional psychological national secondary counselors. The specific comprehensive psychological intervention included cognitive therapy, behavioral therapy, and supportive therapy. The psychological intervention method was mainly based on the characteristics of the disease itself and the problems faced by patients before and after microvascular decompression surgery. The early comprehensive psychological intervention included:

(1). Cognitive therapy:

The mainly purpose is to restructure patients' negative thoughts to positive thoughts by improving their perspective of cognition. The therapy performed 3 days before and after surgery. The researchers routinely communicated with the patient everyday (mostly at afternoon), listen carefully to the patient's complaints, found out their misconceptions about diseases, and promptly provided explanations, corrected ideas and proper guidance. Data from interviews were typically recorded, and researchers evaluated the patient's cognitive

situation. The procedure continued until the patient's concepts changed. Researchers needed to introduce the surgical methods, treatment process and outcomes to every participant. We usually enumerated some successful cases to the patients to help build confidence in overcoming the negative emotions such as anxiety and depression. It is important to let patients know that the negative emotions may have adverse effects on immune function and rehabilitation. Proper psychological support was provided to help them work through anxieties and depressions before surgery, and help patients change their behaviors and live positively.

(2). Behavioral therapy:

Researches adopted a simplified version of relaxation training, aiming to gradually relax body muscles, reduce emotional and physical tension, eliminate anxiety as well as mental stress. The training started 3 days before and after surgery. It took 30-45 mins to complete the progressive muscle relaxation. The details of the procedure are described as follows:

Curl your fists, tighten your biceps and forearms and relax.

With head in a preferred neutral position, rotate the head as far as possible and back to the neutral position.

Wrinkle up your muscles of face like a walnut. Frown with your eyes squinted, tongue pressed against the roof of your mouth. And with the same walnut face, hunch your shoulders, then relax.

Breathe deeply into your abdomen as you slightly arch your back. Hold your breath, observe, and relax. Breathe deeply again, pressing out your abdomen. Hold your breath and then relax.

At last, curl your toes while simultaneously tightening your calves, thighs and buttocks. Relax. Pull your feet and toes back toward your face, tightening your shins. Hold and relax.

Tighten for seven seconds and relax for twenty. Carefully observe the effects of both the contraction and the relaxation of facial muscles. As your muscles loosen, let your whole body grow heavy and still.

(3). Supportive therapy:

The supportive therapy started 3 days before and after surgery and based on the principle of psychological support. By evaluating the patient's personal experience, medical history and other general contents, researchers were able to measure the negative psychological state of patients and got to know their needs of all kinds. used the explanation psychological support methods such as encouragements, mental support, and psychological counseling to help patients overcome negative emotions and rebuild confidence. Besides, involve family members in our therapy group to establish a family support system. Family members could help increasing the probability of facing various difficulties or psychological pressures. In order to decrease surgical infection rate, patients usually were required to get hair all shaved before surgery. For female patients, we suggested to shave the hair as less as possible, making patients feel more comfortable and confident. What's more, encourage patients to communicate and share experience with other patients in the same department and establish a partner-support system.

2.3. Evaluation Methods

2.3.1. The General Information Questionnaire

The self-designed general information questionnaire collected self-reported information on age, weight, sex, occupation, income, marital status, education, insurance, health status, and medical history (current and previous medical problems and related treatment), etc.

2.3.2. The Self-Rating Anxiety Scale (SAS)

The SAS scale, created by Zung et al [10] in 1971, is a simple clinical tool which is commonly used to analyze the patient's subjective symptoms. It's suitable for those adults with clinical symptoms of anxiety. In total, there are 20 items relating to each symptom and each item assessed on a four-point Linkert scale (never or occasionally, sometimes, often, and always). The total score of SAS is obtained by summing the scores of individual items. The higher total scores indicate higher levels of anxiety symptoms. The raw score is standardized according to the formula: standard score= int (1.25* raw score)

2.3.3. The Self-rating Depression Scale (SDS)

SDS was compiled by Zung [10] in 1965. It can intuitively reflect the subjective feelings of depressed patients. There are totally 20 items relating to each symptom and each item was assessed on a four-point Linkert scale (never or occasionally, sometimes, often, and always). The total score of SDS is obtained by summing the scores of individual items. The higher total scores indicate higher levels of depression symptoms. The raw score is standardized according to the formula: standard score= int (1.25* raw score)

2.4. Data Collection Methods

The researchers conducted two times of psychological assessments on each of the two groups, the first assessment

was conducted on the second day after the patient was admitted to the hospital, and the second assessment was conducted on the fifth day after surgery. The researchers were professionally trained before the study by national second-level psychological counselors. Structured one-on-one interviews were conducted in a quiet restroom, relaxed and comfortable. Researchers were required to explain every question in detail and then the patient complete the questionnaire after interview, which usually took 30 to 45 minutes. After the patient completed the questionnaire, the researcher needed to check it whether there were any missing items and ensure that the data were completely and exactly collected. A total of 656 questionnaires were distributed in this study, and 656 were recovered, with a recovery rate of 100%.

2.5. Statistical Analysis

SPSS version 17 was used for data analysis. The researchers performed double-checking on the collected data for statistical analysis. Measurement data were expressed by means and standard errors, and group comparisons were performed using the *t* test. The chi-square test was used for enumeration data. A *p* value of less than 0.05 indicated a significant difference.

3. Results

3.1. Comparison of Anxiety Scores Between the Two Groups

Patients in the two groups got similar SAS scores before nursing intervention. The SAS scores of patients in experimental and control group were 51.70±9.49 and 50.92±10.25. The difference between them was not statistically significant (*p*=0.72). After receiving the early comprehensive psychological intervention, the SAS score of patients in experimental group decreased to 34.33±9.56 while the score of patients in control group decreased to 40.65±12.06. The difference was statistically significant (*P*<0.05).

Table 1. Comparison of anxiety scores before and after intervention in both groups (scores, $\bar{x} \pm s$).

Group	n	Before intervention	After intervention	t value	P value
Experimental group	83	51.70±9.49	34.33±9.56	23.41	0.000
Control group	81	50.92±10.25	40.65±12.06	13.87	0.000
t value		0.8	-6.61		
P value		0.72	0.005		

3.2. Comparison of Depression Scores Between the Two Groups

The results of this study showed that there was no significant difference in the scores of depressions between the two groups before intervention (*P*=0.43). After the early comprehensive psychological intervention, the depression

score of patients in experimental group was significantly lower than that of the control group. The SDS score of patients in observation group decreased from 44.99±10.25 to 29.55±7.64 and the SDS score of patients in control group decreased from 44.27±9.93 to 35.36 ± 8.66. The difference was statistically significant (*P*<0.05) (Table 2).

Table 2. Comparison of depression scores before and after intervention in both groups (scores, $\bar{x} \pm s$).

Group	n	Before intervention	After intervention	t value	P value
Experimental group	83	44.99±10.25	29.55±7.64	19.42	0.000
Control group	81	44.27±9.93	35.36±8.66	19.12	0.000
t value		0.87	7.21		
P value		0.43	0.001		

4. Discussion

4.1. Early Comprehensive Psychological Intervention Is Significantly Beneficial to Reduce the Anxiety Level of Patients Undergoing Microvascular Decompression

Hemifacial spasm (HFS) is hardly to be completely cured. Patients usually feel anxiety and depression about the outcome of disease [11]. Patients with HFS typically live a normal lifespan, but suffer a decreased quality of life as well as comorbidities [13]. A large amount of studies [12-14] dedicate that adverse emotions such as anxiety and depressions can directly affect the patient's treatment compliance and clinical symptom control rate. Negative emotions may prolong the time of disease recovery, reduce immune function and decrease quality of life. Therefore, early psychological intervention in patients with hemifacial spasm undergoing microvascular decompression is particularly important and needed. Compared with biofeedback training, which requires a considerably longer period and needs more professional equipment, the method used in this study has much more advantages. Early comprehensive psychological intervention can be simply conducted and needs low hardware requirements. In the meantime, it costs less. The study showed that the SAS scores of patients in experimental group and control group were 51.70 ± 9.49 and 50.92 ± 10.25 before intervention. The SAS scores reduced to 34.33 ± 9.56 points and 40.65 ± 12.06 points, respectively. The differences were both Statistically significant ($P < 0.05$), indicating that patients with facial muscle spasm benefit a lot from receiving cognitive psychotherapy, behavioral therapy, and early psychological intervention in supportive therapy. The effects of comprehensive psychological intervention were also confirmed in other studies: Chen Hai-qin *et al* [16] applied comprehensive psychological intervention to patients with rheumatoid arthritis and results showed it alleviated the anxiety and depression of patients; Zhou Ya-ting *et al* [17] adopted comprehensive nursing intervention in patients with nasopharyngeal carcinoma. Zhou's study indicated that comprehensive nursing intervention can improve patient's overall QOL and mood status and reduce specific side-effects of radiotherapy.

4.2. Progressive Relaxation Training is Beneficial to Relieve the Degree of Depression in Patients Undergoing Microvascular Decompression

Patients with hemifacial spasm usually accept a long-term treatment with oral or injectable agents and it can affect patients' physical, psychological and social wellbeing. When exposed to stress, patients are prone to experience symptoms of anxiety and depression. In addition, related studies show that patients' anxiety is associated with postoperative adverse effects and prolong hospital stay [18]. Chellew *et al* [19] confirmed that progressive relaxation training can reduce the individual's stress response to depression and anxiety by significant reducing level of cortisol secretion, thus not only

reduce stress and negative emotions psychologically, but also regulate the heart rate and Breathe rate, lower blood pressure and relax peripheral blood vessels. The data analysis showed that the SDS scores of patients in experimental group decreased from 44.99 ± 10.25 to 29.55 ± 7.64 after conducting the intervention, while the SDS scores of patients in control group decreased from 44.27 ± 9.93 to 35.36 ± 8.66 . The results confirmed that the depression scores of patients in experimental group were significantly improved compared to those in control group. The difference between the two groups was statistically significant ($P < 0.05$). It implied that progressive relaxation training was beneficial to relieve the degree of depression in patients with hemifacial spasm undergoing microvascular decompression. This had been confirmed by some other studies: Kim *et al* [20] applied progressive relaxation training to colorectal cancer patients undergoing laparoscopic surgery, and found that it can help patients slow down preoperative stress response and reduce postoperative blood Pressure and cortisol levels; Li Xiaoxia *et al* [21] found that progressive relaxation training had a significant effect on relieving post-operation pain in fracture patients, and can be wildly used in clinical treatments.

4.3. Limitations and Recommendations

In this study, we conducted early psychological interventions in combination with cognitive therapy, behavioral therapy, and supportive therapy in patients with hemifacial spasm undergoing microvascular depression and achieved satisfactory clinical results. The results confirmed that early comprehensive psychological intervention has significantly clinical improvement on patient's negative psychological conditions and can promote the mental health. Meanwhile, here are some limitations. First, this study does not evaluate the long-term effects of the intervention. Second, we conducted this study in small amount of cases in a short period time. Therefore, the results cannot be considered representative of all patients with hemifacial spasm. A multicenter clinical study should be conducted in future.

5. Conclusion

The results from this study and published data support the conclusion that early comprehensive psychological intervention is beneficial to alleviate the negative emotions and promote mental health in patients with hemifacial spasms undergoing microvascular decompression. However, further extensive work will be required to study more in depth.

References

- [1] Tan, E. K., *et al*. "Validation of a short disease specific quality of life scale for hemifacial spasm: correlation with SF-36." *Journal of Neurology, Neurosurgery & Psychiatry* 76.12 (2005): 1707-1710.
- [2] Tan, N - C., L - L. Chan, and E - K. Tan. "Hemifacial spasm and involuntary facial movements." *Qjm* 95.8 (2002): 493-500.

- [3] Wang, Lin, et al. "Clinical features and treatment status of hemifacial spasm in China." *Chinese medical journal* 127.5 (2014): 845-849.
- [4] Bao Fa-xiu, Mao Cui-ping, et al. "Correlation of neurovascular contact/compression grade with severity of spasm, impaired cognition and emotion in patients with hemifacial spasm." *Chinese Journal of Medical Imaging Technology*, 2014, 30 (7): 1001-5.
- [5] Wang Hong, Zhang Hu-li, et al. "A survey of mental health state in patients with blepharospasm and hemifacial spasm." *Chinese Journal of Behavioral Medical Science*. 2002, 11 (2): 141-142.
- [6] Chen Mei-rong, Ma Ya-hong, et al. "Postoperative nursing of patients with hemifacial spasm undergoing microvascular decompression surgery." *Nursing Journal of Chinese People's Liberation Army*, 2014, 31 (21): 46-63
- [7] Li Chun-mei, "perioperative nursing of 158 cases of primary hemifacial spasm treated by microvascular decompression of facial nerve roots." *Journal of Qilu Nursing*, 2013, 19 (24): 80-81.
- [8] Wang Juan, Liang Qing-hua, et al. "perioperative nursing of facial nerve root microvascular decompression for the treatment of facial spasm." *Chinese Journal of Practical Nervous Diseases*, 2013, 16 (10): 94-96.
- [9] Zhou Zhao-jun, Wang Mao-song, Han Bing, et al. "Effects of biofeedback training on psychological state of patients with hemifacial spasm." *Chinese Journal of Modern Medicine*, 2016, 18 (3): 62--63.
- [10] Shi Feng, Chang Qing, Ni Hong-bing, et al. "peri-operative care for patients with hemifacial spasm treated by microvascular decompression." *Journal of Nurses Training*, 2014, 29 (18): 16 74-1676.
- [11] Zhang Ming-yuan. "Manual of Mental Rating Scale." *Changsha: Hunan Science and Technology Press*, 2003: 35-42, 81-94.
- [12] Wu Wei, Chen Lei-qian, Dong Wei, et al. "Evaluation of psychological status of patients with hemifacial spasm." *Health Psychology Journal*, 2000, 8 (1): 66-67.
- [13] Zhu Ming-lan, Zhou Zhen-bo. "Nursing care of 45 patients with hemifacial spasm treated by microvascular decompression." *Chinese Journal of Nursing*, 2006, 41 (8): 699-700.
- [14] Brant P, Weinert C. "The PRQ: A social support measure." *Nursing Research*, 1981, 30: 277-280.
- [15] Fu Yong-qiang, Wei Ming-ran, Tu Jin-quan. "Delayed facial paralysis after microscopic vascular decompression." *Chinese Journal of Primary Medicine and Pharmacy*, 2011, 18 (1): 115-116.
- [16] Chen Hai-qin, Xu mei-ying, Shi Xing-fen, et al. "Effects of integrated psychological intervention on negative emotion in patients with rheumatoid arthritis." *Nursing Journal of Chinese People's Liberation Army* 2016, 27 (4A): 487-489.
- [17] Zhou Ya-ting, Niu Ya-ling, et al. "Effects of comprehensive nursing intervention on psychological state and quality of life in patients with nasopharyngeal carcinoma during radiotherapy." *China Journal of Health Psychology*. 2015, 23 (7): 1050-1051.
- [18] Wu Shi-ju, Wu Jun-ling, Li Run-ying. et, al. "The study of the impact of anxiety to postoperative adverse in hemifacial spasm patients." *Chinese Journal of General Practice*. 2016, 11 (3): 484-491.
- [19] Chellew, K., Evans, P., Fornes-Vives, J., Perez, G. and Garcia-Banda, G. "The effect of progressive muscle relaxation on daily cortisol secretion." *Stress*, 2015, 18 (5), pp. 538-544.
- [20] Kim, K. J., Na, Y. K. and Hong, H. S "Effects of progressive muscle relaxation therapy in colorectal cancer patients." *Western journal of nursing research*, 2016, 38 (8), pp. 959-973.
- [21] Li Xiaoxia, Liu Na. "Efficacy of progressive muscle relaxation on fracture of postoperative pain." *Nursing Practice and Research*. 2013, 10 (6): 41-42.