Analysis of Nursing Cooperation in Microscopic Pituitary Tumor Resection via Transsphenoidal Approach

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Abstract: To analyze the clinical effect of nursing cooperation in transsphenoidal approach microscopic hypophysectomy. From January 2017 to January 2020, 80 patients who underwent transsphenoidal microscopic hypophysectomy in our hospital were selected to participate in the analysis and study. They were divided into two groups according to the randomized allocation, namely the observation group and the control group. Among them, 40 patients in the observation group and 40 patients in the control group were given routine nursing care for the patients in the control group, and comprehensive nursing intervention was adopted for the patients in the observation group, and the overall nursing effect of the two groups of patients was compared. After taking different nursing methods, the condition of patients in both groups was effectively controlled, and the effective rate of patients in the observation group with comprehensive nursing intervention was significantly better than that of patients in the control group with conventional nursing methods, and the difference had certain statistical significance ($P < 0.05$); The satisfaction degree of patients in the study group was significantly better than that of patients in the control group, and the difference was statistically significant ($P < 0.05$). The degree of negative emotions of patients in the study group was significantly better than that of patients in the control group after receiving comprehensive nursing intervention, and the difference was statistically significant ($P < 0.05$), and the difference in the incidence of adverse events between the two groups was not statistically significant ($P > 0.05$); The scores of each index of SF-36 questionnaire of patients in both groups were higher than those before nursing, and the scores of each index of patients in observation group were higher than those of patients in control group, and the difference was statistically significant ($P > 0.05$). With adequate preoperative preparation and mastery of the use of mechanical equipment, comprehensive nursing intervention can effectively improve the treatment effect of patients, make patients more satisfied with the nursing work, and can soothe patients' negative psychological mood, eliminate panic, improve patients' life confidence, enhance intraoperative cooperation, and ensure that the operation can be completed smoothly.

Keywords: Transsphenoidal Approach Microscopy, Pituitary Tumor Resection, Nursing Cooperation
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Pituitary adenoma is one of the common benign tumors in clinic. At present, the best clinical treatment is tumor resection, which can be effectively cured [1]. In the resection of pituitary tumors, the two most basic surgical methods are transcranial and transsphenoidal approaches. With the application of microsurgery in surgical procedures, the scope and rate of use have gradually increased. At the same time, medical equipment has been constantly updated, and microscopic transsphenoidal approach for pituitary tumor resection has become an efficient, simple and safer surgical method. This surgical method has been used in our hospital for two years, and has a wide range of applications and achieved certain results. Compared with traditional craniotomy, this surgical method causes less trauma to patients and can effectively control complications, greatly

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reducing the length of hospital stay [2]. The effective means to ensure that the operation can be completed smoothly and the therapeutic effect can be improved is the active cooperation plus careful nursing. This study compared and analyzed the clinical nursing cooperation modes for pituitary tumor patients in our hospital, and the specific research contents are as follows.

STUDY OBJECTS AND METHODS

Study subjects

From January 2017 to January 2020, 80 patients who underwent transsphenoidal microscopic hypophysectomy in our hospital were selected to participate in the analysis and study. They were divided into two groups according to the randomized allocation, namely the observation group and the control group. Among them, 40 patients were randomly assigned to the observation group, including 23 male patients and 17 female patients. The age of the patients ranged from 21 to 74 years, and the average age of the patients was (38.21±1.6) years. The control group randomly assigned 40 patients, including 21 male patients and 19 female patients. The age of the patients ranged from 23 to 72 years, and the average age of the patients was (37.9±2.1) years. The patients who participated in this investigation and study had debts of 3 months to 7 years in terms of course of disease, with an average course of disease of (1.5±3.2) years. The diameter of the tumors ranged from 6 to 44 mm, and the pathological examination results after surgery were pituitary tumors. All the patients involved in the study had different degrees of clinical symptoms during admission for treatment, such as dizziness and headache, nausea and retching, and visual impairment. There was no significant difference in general data such as gender, age, tumor diameter and clinical manifestation between the two groups, which was not statistically significant ($P > 0.05$), and met comparable conditions.

Research methods

Patients in the control group were given routine nursing, including surgical methods, preoperative preparation, surgical cooperation, and postoperative cooperation.

Comprehensive nursing intervention was adopted for patients in observation group. Preoperative preparation: to take psychological care for patients, visit patients 1 day before surgery, understand the basic situation of patients, take corresponding psychological care according to the sex, age and cultural level of patients, explain the operation and anesthesia to patients and their family members, remind patients of the parts they need to cooperate with, and at the same time, give patients successful cases of general surgery. In addition, the patient and his family members' questions are explained in detail patiently to eliminate the fear of surgery, so that patients can cooperate with surgery and follow-up treatment with a positive attitude, and help patients build confidence. Secondly, the instruments and related articles used in the operation should be prepared. These include conventional craniotomy instruments, microscopy, bipolar coagulator, aspirator, long bipolar coagulation forceps, medical cotton cloth, medical sponge, hydrogen peroxide, detergent, iodophor, metronidazole, gentamicin, Vaseline gauze and other related surgical instruments and drugs, to ensure that there is no omission, if there is a missing need to be supplemented in the first time [3].

In terms of operation cooperation, for the circulating nurses, they need to receive the patients and their family members in an active and full state, and help and guide the patients into the operating room. They need to be able to strictly and carefully perform six examinations, twelve pairs and four in place. Intravenous channel was set in the upper body of the patient, intravenous antibiotic injection was carried out 30 minutes before the operation, and tracheal intubation under general anesthesia was carried out with the anesthesiologist to help the patient lie down in a supine position, fix the head of the patient, and keep the patient back about 20 degrees. Align the nostril of the patient to the operator, place shoulder bracket on the shoulder of the patient, place both arms on both sides of the body, block the patient's ears with cotton ball, and ensure that the patient's mouth, nose and eyes are not damaged by disinfectant. After the patient is anesthetized, the microscope is placed in the main

knife physician's mutiny, and the operating table is pasted to prevent, bipolar coagulator, newly caused, anesthetic, monitor and other instruments and equipment are reasonably placed. Connect the power supply of the equipment and instruments in advance and carry out routine inspection to ensure that the performance of the instruments and equipment is intact. At the same time, set the instruments and equipment to the best working state, and cooperate with the equipment nursing staff to place the sterile microscope cover. Carefully complete the inventory of cotton cloth and other equipment before and after operation, reasonably adjust the power of bipolar coagulation and negative pressure aspirator during the operation, record the nursing record sheet and safety check sheet of operation room according to the actual situation of operation, carefully observe the changes of vital signs of patients, timely inform the chief knife doctor, and take active measures in case of changes. After the operation, the pathological specimens were carefully checked and fixed with formaldehyde solution to complete the final registration work. Instrument nurses need to wash their hands 30 minutes before the beginning of the operation, check the equipment and articles needed by routine nurses and retrieved nurses, and place them in a reasonable order of use. All types of medical cotton cloth needed during the operation are handled and placed in advance. Set up a sterile microscope cover together with the tour nurses, and then fix it with a sterile rubber band, which is convenient for the master knife doctor to adjust at any time during the operation. Help doctors disinfect patients, use Iodophor to clean their face and nasal cavity, and cooperate with tour nurses to test the equipment. At the beginning of the operation, the patients were disinfected with Iodophor cotton cloth, and the nasal cavity of the patients was opened with appropriate dilators according to the actual situation of the patients. The patient's nasal septum was opened by microscopy and bone-massage forceps, the opening of the naso-sphenoidal sinus was repeatedly confirmed, the sphenoidal wall of the patient was displayed as far as possible, the anterior wall of the patient's sphenoid sinus was opened by relevant instrum ents and the anterior wall was resected, the wound was stopped by bipolar coagulation, the sphenoidal mucosa of the patient was resected, and the location of the tumor was confirmed. Tumors were removed by pituitary tumor scraping and tumor removal forceps, the cut tumor tissues were loaded into sterile saline, and the tumor cavity was washed repeatedly with hydrogen peroxide to prevent patients from infection, and the residual tumor tissues could be effectively cleaned. Then the patients were treated with bipolar electrocoagulation forceps, and the tumor cavity was filled with gelatin sponge. Then the patient's sphenoid sinus cavity was rinsed with metronidazole and gentamicin solution, and the number of instruments used in the operation, especially medical cotton cloth, was counted together with the tour nurses. The nasal dilator was removed from the patient's nasal cavity, and the two sides of the patient's nasal cavity were filled with Vaseline gauze. The surgical specimens were handed over to the tour nurses.

Postoperative cooperation: After the operation, wait for the patient to fully recover consciousness, pull out the endotracheal intubation, and follow up the patient's physical condition to confirm whether there is bleeding in the nasal cavity, intravenous fluid infusion and whether there is blockage in the urinary catheter. The patient's case, CT photos, clothes and other items will be sorted out, and the patient will be sent back to the ward together with the anesthesiologist. Hand over with ward nurses, and explain anesthesia and drug use to ward nurses in detail. Remind patients to breathe with their mouth as much as possible to prevent nasal cavity filling due to breathing inhalation into the nasal cavity, causing breathing difficulties, remind patients to rest in a semi-sitting position, avoid cerebrospinal fluid leakage, and can ensure the smooth nursing of patients. At the same time, explain the operation process to the accompanying patients' families, comfort the patients' emotions, explain the successful cases to the patients, enhance the patients' confidence, and actively cooperate with the treatment and recovery work after the operation.

Observation index

Therapeutic effect: To observe the actual therapeutic effect of the two groups of patients, the criteria for judging the therapeutic effect of the patients were normal vision, no dizziness and headache symptoms, lactation, polyuria, etc. disappearance, which was significant; visual recovery was obvious, dizziness, lactation, polyuria and other symptoms were significantly improved, which was effective; The symptoms of vision loss, visual field damage, lactation polyuria, dizziness and nausea, limb weakness, etc. were ineffective.

Patient Satisfaction: The two groups of patients were compared according to the degree of satisfaction. This study uniformly distributed a designated questionnaire, in which the survey indicators were satisfaction with nursing work, satisfaction with nursing staff, satisfaction with the hospital's services, with a full score of 100 points. Among them, 90-100 points are very satisfied; 60-89 points are satisfactory; 59 points and below are unsatisfactory. In addition, the occurrence of adverse reactions during treatment and nursing was compared in detail between the two groups.

Negative mood and adverse events: patients in both groups were treated for two months, and the SDS and SAS scores and the incidence of adverse events were observed.

Zung's Self-Rating Depression Scale (SDS). There are 20 questionnaires, which are scored according to grade 1-4. The total score is 20-44, 45-59 is mild or moderate, 60-74 is severe, and 75-80 is extreme severe.

Zung's Self-Rating Anxiety Scale (SAS). This questionnaire is basically consistent with the Self-rating Depression Scale in terms of design. All participating patients should satisfy the basic reading and cognitive abilities, and be able to participate spontaneously in the research survey and fill in the scale carefully.

Quality of life: The quality-of-life rating scale is composed of 36 items, including 8 dimensions: physical, mental, social, psychological, physical, energy, physical pain and basic health. The scoring standard of each dimension is cumulative. The original score is calculated according to the final constitution, and then the conversion score is calculated with the standard formula. The higher the score of each dimension, the better the situation. The evaluation is carried out according to the percentage system.

Statistical methods

The relevant data of this study were basically processed and analyzed by statistical software SPSS25.0, in which the expression and test of count data were identified by percentage (%) and variance (X^2), respectively. Relevant data were expressed and tested by mean standard deviation (X±S) and t respectively, and were expressed by $P < 0.05$ when the data were statistically significant.

RESULTS

Comparison of therapeutic effect of two groups of patients under different nursing methods

Comparing the treatment effective rate of the two groups of patients, the treatment effective rate of the patients in the observation group was 97.50% (39/40), and that of the patients in the control group was 75.00% (30/40). Comparing the two groups of data, the treatment effective rate of the patients in the observation group was significantly better than that of the patients in the control group, and the difference between the two groups of data was statistically significant (P<0.05). See Table 1 for details.

Table 1.
Comparison of treatment effect of two groups of patients under different nursing methods

Groups	cases（n）	Number of marked effects（n）	Number of effective（n）	Number of ineffective（n）	Total effective rate of treatment（%）
Observation group	40	32	7	1	97.50%（39/40）
Control group	40	16	14	10	75.00%（30/40）
X2	/	/	/	/	
P	/	/	/	/	

Comparison of patient satisfaction between two groups of patients under different nursing methods

Among the patients in the study group, there were 17 patients who were very satisfied with

nursing work, 22 patients who were satisfied with nursing work, 1 patient who was not satisfied with nursing work, and the overall satisfaction rate was 97.50%. Among the patients in the control group, there were 12 patients who were very satisfied with nursing work, 20 patients who were satisfied with nursing work, and 8 patients who were not satisfied with nursing work. The overall satisfaction rate was 80.00%. Through comparative analysis, the data of patients in the study group were significantly better than those of patients in the control group, and the difference was statistically significant (P<0.05). See Table 2 for details.

Table 2.
Comparison of patient satisfaction between two groups under different nursing methods

Group	Cases	Very satisfied	Satisfied	Dissatisfied	Degree of satisfaction
Control group	40	12（30.00）	20（50.00）	8（20.00）	32（80.00）
Research group	40	17（42.50）	22（55.00）	1（2.50）	39（97.50）
X2 value	/	/	/	/	6.1346
P value	/	/	/	/	0.0133

Comparison of negative emotions between two groups of patients under different nursing methods

After the patients in the study group received routine nursing care and comprehensive nursing intervention, the scores of SDS and SAS were relatively reduced, and the negative emotional situation was also slowed down to a great extent, and the negative emotional score of the patients in the control group after taking comprehensive nursing intervention was significantly lower than that of the patients in the control group after taking conventional nursing. The difference before and after nursing met the statistical significance (P<0.05). There was no significant difference in the incidence of adverse events between the two groups (P > 0.05); details are shown in Table 3.

Table 3.
Results of SDS and SAS scores before and after nursing in two groups

Group	Cases	Incidence of adverse events	SDS		SAS	
			Pre-care	Post-care	Pre-care	Post-care
Research group	40	1	54.23±2.23	2.56±1.15	6.23±2.43	1.96±1.2
Control group	40	6	54.89±2.34	2.52±1.85	7.45±2.33	9.53±1.9
T		1.9636	1.3115	29.8613	2.3212	21.3049
P		0.1611	0.1935	0.0000	0.0229	0.0000

Comparison of quality of life of two groups of patients under different nursing methods

The physical fitness of the patients in the observation group was significantly better than that of the patients in the control group, and the difference was statistically significant (P < 0.05); the mental status of the patients in the observation group was significantly better than that of the patients in the control group, and the difference was statistically significant (P < 0.05); The social activities of patients in the observation group after nursing were significantly better than those in the control group, and the difference was statistically significant (P < 0.05); the psychological conditions of patients in the observation group after nursing were significantly better than those in the control group, and the difference was statistically significant (P < 0.05); The physical condition of patients in the observation group after nursing was significantly better than that of patients in the control group, and the difference was statistically significant (P < 0.05); the energy of patients in the observation group after nursing was significantly better than that of patients in the control group, and the difference was statistically significant (P < 0.05); The physical pain of patients in the observation group after nursing was significantly better than that of patients in the control group, and the difference was statistically significant (P < 0.05); the basic health of patients in the observation group after nursing was significantly better than that of patients in the control group, and the difference was statistically significant (P < 0.05).See Table 4 for details.

Table 4.
Comparison of assessment dimensions of SF-36 quality of life questionnaire before and after nursing in two groups ($\bar{x}\pm S$)

Group	Physical fitness		Mentality		Social activities	
	Pre-care	Post-care	Pre-care	Post-care	Pre-care	Post-care
Observation group（n=40）	50.33±6.77	69.27±9.05be	43.25±5.92	62.18±8.28be	46.61±5.53	67.32±7.94bd
Control group（n=40）	51.45±7.11	64.36±8.44a	42.84±5.71	58.36±6.60b	45.90±5.72	59.17±7.45b
Group	Psychological		Physical		Energy	

	situation		condition			
	Pre-care	Post-care	Pre-care	Post-care	Pre-care	Post-care
Observation group（n=40）	41.75±5.35	67.35±7.65bd	35.38±4.62	56.32±6.26bd	44.38±5.14	63.72±7.12be
Control group（n=40）	40.60±5.41	58.05±7.07b	35.19±4.74	50.48±6.06a	43.05±5.25	58.15±6.86b
Group	Bodily pain				General health	
	Pre-care	Post-care			Pre-care	Post-care
Observation group（n=40）	39.63±5.70	60.05±7.38be			55.92±6.80	67.71±7.94be
Control group（n=40）	40.27±5.51	54.24±6.79b			54.74±6.75	63.20±7.52a

Note: Compared with pre-care: [a]P<0.05，[b]P<0.01；And compared with the control degree; [c]P<0.05，[d]P<0.01.

DISCUSSION

Pituitary tumors are one of the common clinical diseases at this stage, which can be classified according to the size of tumors, hormone secretion and function [4,5]. According to the size of the tumor volume, a pituitary tumor is called a pituitary microadenoma when its diameter is less than 1 cm, and a pituitary adenoma when its diameter is greater than 1 cm. It can be divided into hormone-secreting pituitary adenomas and nonfunctional adenomas according to the way and function of hormone secretion. The size of pituitary tumors has a great impact on the treatment and nursing work. Generally, more than 70% of pituitary nonfunctional adenomas are basically treated without artificial intervention. In the absence of corresponding pituitary function damage, the clinical treatment is long-term follow-up. If the corresponding clinical response occurs in the follow-up stage, and the growth rate of the tumor gradually increases, resulting in the compression of nerves and tissues around the tumor, such as the patient's visual acuity is decreased, and the visual field is severely damaged, surgical treatment is needed [5,6].

Abnormal symptoms of pituitary tumors: Generally, pituitary tumors belong to benign brain tonic tumors and are a common clinical disease. The pituitary gland is an important endocrine tissue of human body, including a variety of endocrine cells, which secrete a large amount of endocrine hormones [7].Once a certain endocrine cell appears a tumor, the clinical manifestations are as follows: according to the endocrine way of pituitary tumors, growth hormone cell adenoma in the initial diameter of only a few millimeters, its main clinical manifestation is secretion of a large amount of growth hormone; The main clinical manifestations of prolactin cell adenoma are amenorrhea, galactorrhea and infertility. Patients with severe episodes will also have hair loss, skin too delicate, subcutaneous fat accumulation, accompanied by fatigue, dizziness and headache. The clinical manifestations of male patients are decreased libido, impotence, premature ejaculation, sparse body hair. Severe patients will have atrophy of reproductive organs, reduced sperm output, infertility, etc. The clinical manifestations of adrenocorticotropic hormone cell adenoma are sudden weight gain, excessive obesity, body edema, and obvious purple lines on the body. Severe patients will have amenorrhea, decreased libido, fatigue, more likely to be bedridden, and easy to cause complications such as hypertension; Thyroid stimulating hormone cell tumors are uncommon, because pituitary thyrostimulin is secreted too much, and the clinical manifestations are roughly the same as those of hyperthyroidism, and symptoms disappear after tumor resection. In addition, hypothyroidism leads to focal hyperplasia of the pituitary gland, which will develop into pituitary adenoma over time. Excessive tumor volume will lead to sellar hyperplasia in the human body, resulting in compression of tissues near the tumor; Follicle-stimulating hormone cell adenoma is rarer than the previous one, only a very few patients have clinical manifestations documented, such as decreased libido, amenorrhea, infertility, and low sperm count. Melanin-stimulating melanocytic adenoma is also a rapist, with only a very few patients with clinical manifestations documented as dull skin; the clinical manifestation of endocrine-inactive adenomas is that the patients have no obvious sensation in the initial stage, and in some cases pituitary insufficiency occurs [8-10].

In addition, pituitary tumors have a great impact on the visual nerve. Visual acuity and visual field impairment are the main clinical manifestations. In the initial stage of pituitary adenoma, the visual field of the patients will not show obvious decline. With the increasing volume of the tumors, the optic chiasm will be squeezed, which will lead to

the loss of visual field of the patients. First of all, the upper outer quadrant will be affected. Red field of vision can be first perceived, as the condition continues to aggravate, resulting in severe compression of the visual nerve, white field will be affected, and gradually the situation of visual field loss will gradually expand to the whole field of vision, once no timely treatment is taken, the situation of visual field loss will gradually become serious, and will seriously affect the visual acuity, leading to complete blindness of the patient [11]. Because pituitary adenomas are basically benign tumors, there is a long period of early onset, when the condition gradually deepens, visual impairment and visual field damage will increase sharply, in the case of tumor biased to one side, will cause monocular blindness. Additional clinical symptoms are thirst, polyuria, oculomotor nerve and abducens nerve paralysis, psychiatric symptoms, dizziness, retching, unconsciousness, and in severe cases will lead to paralysis, cerebral debilitation and ankylosis [12,13].

With the continuous progress and improvement of modern medical technology, high-tech precision instruments can be used more and more widely in surgical operations, coupled with the updating speed of theoretical knowledge, at this stage, the use of transsphenoidal approach microscopic pituitary adenoma resection has achieved many successful cases [14-16].In addition to the need for efficient and scientific surgical techniques to treat pituitary adenomas, nursing cooperation has a great influence in the treatment process. The above-mentioned clinical symptoms of pituitary adenoma can be seen that although most cases of pituitary adenoma are benign tumors, it still has a great impact on the physical health, mental and mental health of patients, and patients with severe conditions may experience paralysis, coma, blindness, infertility, mental impairment and other conditions [17-19]. Although conventional nursing cooperation is used in most surgical treatments, it is not necessarily able to achieve good therapeutic effect and rehabilitation effect for patients with pituitary adenoma. Comprehensive nursing intervention is one of the current clinical nursing methods, aiming at the various links before and after surgery, and can have a good help effect on the surgical effect, treatment effect, patients' physical health, mental and psychological level, etc. [20].

In this paper, a total of 40 patients in the two groups were compared and analyzed. After taking different nursing methods, the condition of the two groups of patients were effectively controlled. The effective rate of patients in the observation group with comprehensive nursing intervention was significantly better than that of patients in the control group with conventional nursing methods, and the difference was statistically significant ($P < 0.05$). The satisfaction degree of patients in the study group was significantly better than that of patients in the control group, and the difference was statistically significant ($P < 0.05$). The degree of negative emotions of patients in the study group was significantly better than that of patients in the control group after receiving comprehensive nursing intervention, and the difference was statistically significant ($P < 0.05$), and the difference in the incidence of adverse events between the two groups was not statistically significant ($P > 0.05$); The scores of each index of SF-36 questionnaire of patients in both groups were higher than those before nursing, and the scores of each index of patients in observation group were higher than those of patients in control group, and the difference was statistically significant ($P > 0.05$).

In conclusion, comprehensive nursing intervention can effectively improve the treatment effect of patients, make patients more satisfied with the nursing work, and can calm patients' negative psychological mood, eliminate panic, improve patients' confidence in life, enhance intraoperative cooperation, ensure that the operation can be completed smoothly, which is worthy of wider promotion and use.

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