

The Preliminary Study on Perioperative Nursing of Pituitary Adenoma

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ABSTRACT Including nursing of complications during preoperative, intraoperative and postoperative process. Closely observing postoperative complications, actively preventing the occurrence of complications, taking corresponding nursing measures as early as possible, improving the success rate of surgery, reducing the case fatality rate and promoting patients recover.

KEYWORDS

Nasal endoscopy
Sphenoid sinus
Pituitary adenoma
Perioperative care

1. Introduction

Pituitary adenoma is a kind of intracranial multiple tumors as well as a kind of benign tumors with 1/100,000 incidence, only after glioma and meningioma and accounts for about 15–20% of intracranial tumor. It can happen at any age, with the majority of 40 to 50 years old, male and female ratio is 1.2:1. Main performances are local oppression and endocrine abnormalities. Often accompanied with dizziness, headache, decreased visual acuity and visual dysfunction, Marie, sexual dysfunction, amenorrhea, lactation and other symptoms. It has been more than 10 years since nasal endoscopic resection of pituitary adenoma been invented, clinical practice proved that operation by this way has its own advantages: a shortcut to the passage, simple, small trauma, and in addition more safer, more thoroughly, and lower recurrence rate when cut off the tumor, it is the best way for surgical treatment of pituitary tumor. Our department had conducted 11 cases of pituitary adenoma resectionin through total nasal transsphenoidal approach from March 2011 to December 2013, through active treatment nursing, these 11 cases were all discharged from hospital upon recovery. The perioperative nursing experience will be introduced as follows.

2. Clinical data

2.1. General information

This group is made up of 11 patients, with 5 male and 6 female, aged between 24–64, including 8 cases of prolactin adenoma, 1 case of growth hormone adenoma, 1 case of adrenocorticotrophic hormone adenoma and one case of nonfunctional adenoma. Their main symptoms are 6 cases of headache, 2 cases of amenorrhea, 2 cases of lactation and 1 case of acromegalia.

2.2. Surgical method

All under general anesthesia via nasal endoscope single nostril transsphenoidal approach of pituitary adenoma resection, butterfly chamber using hemostatic, gelatin sponge and iodoform gauze tamponade. Anti-inflammatory and descending intracranial pressure treatment after surgery, continuous extract nasal cavity stuffing after 6 to 8 days.

2.3. Results

The incidences of postoperative symptoms such as headache, eyesight, amenorrhea, lactation are improved to varying degrees, pituitary hormone basically returned to normal level. 3 cases of concurrent for cerebrospinal fluid leak, among which 2 patients were cured after stay in bed for two weeks and the other 1 case by lumbar puncture catheter drainage and nasal endoscopic repair of self-healing after 1 week, 3 cases of diabetes insipidus, 1 case of increasing visual acuity vision disorders, pituitary function in 1 case, intracranial pneumatosis in 1 case, 4 cases of electrolyte metabolism disorder, high fever in 2 cases, no cases of intracranial infection and death. Average course is of 14 to 20 days, through active treatment and nursing, all patients in this group are discharged from hospital upon recovery.

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3. Key points of nursing care

3.1. The preoperative nursing care

3.1.1. Psychological nursing

Patients with anxiety, fear, worry about surgical curative effect and safety, according to patients' these psychological characteristics we can use popular language and introduce successful cases to enhance their confidence and ease their tension, finally making them actively cooperate with treatment and nursing [1].

3.1.2. Routine preoperative nursing

No water 8 hours before operation, assurance of enough sleep and skin in clean sanitation.

3.1.3. Nasal preparation

Make sure that the nose is clean, no inflammation, using prescribed antibiotics cefuroxime and hemp when necessary. 3 days before preoperative began to wash nasal with physiological saline 1 to 2 times a day, cut nose hair, do not damage the nasal mucosa.

3.1.4. Adaptive training

Train patients with mouth breathing 3 days before operation and make them adapted to postoperative nasal cavity filling yarn. Guide patients with practicing defecate in bed to facilitate postoperative urine flow.

3.1.5. Perfect the relevant check

Blood routine, urine, CT, MRI, and endocrinological test, such as:, FSH, LH, PRL, GH, or ACTH, etc.

3.2. Postoperative nursing

3.2.1. Position

Patients has not been awake from anesthesia should be recumbent with head tilted, then after waking up from anesthesia the heads of their beds should be raised 15 to 30 degrees, better for the intracranial venous reflux and reduce the occurrence of cerebral edema. At the same time also can make the intracranial organization down because of gravity, press the incision of epidural, which is good for healing and reduce the occurrence of cerebrospinal fluid leak [2].

3.2.2. Physiological care

Close observation of patients' vital signs, changes in disease conditions, their state of consciousness, pupil change, monitoring their body temperature, pulse, respiration, blood pressure, blood oxygen saturation, the nasal cavity filling oozing situation, report any abnormal should promptly to the doctor and processing actively. Keeping accurate records in 24 hours, especially the urine output per hour.

3.2.3. Nasal care

Nasal mucosa capillary is quite rich, after the operation fill

the nasal cavity with iodoform gauze tamponade, change the dressings timely if there is seepage. 1 week of postoperative nasal cavity fillings can be pumped out continuously.

3.2.4. Oral care

For nasal cavity's filled and hemorrhagic secretions from the nasal passages into pharynx posterior wall, patients are encouraged to breathe through mouth. Pharyngeal wet gauze to cover the mouth and relieve dry discomfort, lip weather-shack with liquid paraffin 3-4 times/day, strengthen oral care, keep the mouth clean and prevent oral infections [3].

3.2.5. Nursing of complications

Diabetes insipidus

The most common complications and usually occurs within 48 hours after surgery. Urine output more than 200 mL/h (or >3000 mL/d) for several hours, urine color grows thinner, urine specific gravity <1.005, urine osmotic pressure <200 tendency can be diagnosed diabetes insipidus. The surgery does damage to pituitary lobe and the pituitary stalk, which will influence the release of vasopressin and operation, diabetes insipidus has a high postoperative incidence. 3 patients in this case appeared different degree of diabetes insipidus 1-3 days postoperative, their nursing priorities were given to watch any more drink polyuria, polydipsia and any presence of signs of dehydration. Rigorous testing urine output, accurately record urine output per hour and 24 hours a day, pay attention to water and electrolyte balance. Guide patients to eat foods high in sodium, potassium appropriately, such as bananas, seaweed, etc., avoiding pear, watermelon and other sweets, lest produce osmotic diuresis for elevated blood sugar. Taking fair use of prescribed diuretics like pituitrin, oral condensation in 1 case, and 3 cases were under control after 1 to 2 weeks [4,5].

Cerebrospinal fluid leak

Cerebrospinal fluid from rupture or bead omentum, dura mater defect and skull into the nasal cavity or sinus, and flow out of before and after nose or nasal pharyngeal. Quantitative check out clear watery liquid flow from the nostrils checked quantitative glucose tendency >1.65 L for positive, confirmed that nose leakage is cerebrospinal fluid as the gold standard of diagnosis. Operation may damage the sphenoid sinus or tumors grew downward and destruct the butterfly or cough forcefully, and hold breath can all caused intracranial pressure and cause sphenoid sinus, if not cure for a long time can cause bacterial meningitis. To reduce intracranial pressure, strengthen anti-inflammatory and nutritional therapy, it can heal itself. Prescribed 20% mannitol dehydrate step-down, absolute bed rest for 1-2 weeks, head of bed up to 30 degrees, pay attention to local position cleansing, don't dig nose and avoid nasal cavity filling. Remind patients don't cough, sneeze or excessive

forcibly bowed their heads to avoid intracranial pressure increased. A low salt diet, proper limit amount of drinking water, eat more fruits, vegetables, prevent constipation and give delay evacuate when necessary. If conservative treatment for 4-6 weeks did not see improvement, surgical treatment should be taken. In this group of cases, 3 cases of cerebrospinal fluid leak 2-10 days postoperative, among them 2 cases cured by conservative treatment 1 to 2 weeks postoperative, 1 case of lateral ventricle drainage via lumbar puncture and cured by nasal endoscopic repair 1 week after the surgery. Catheter drainage patient by lumbar puncture should give proper drainage tube care, properly fixed, observe and record the quantity and character of drainage fluid, avoid intracranial pressure drop which could cause headaches and cerebrospinal fluid counter-current infection. File cerebrospinal fluid examination and drug sensitive test, appropriate use of antibiotics that can through the blood-brain barrier, pull out the tube 2 weeks after the surgery, for the proper disposition, no infection occurs [5].

High fever

Pituitary adenoma resection impaired the hypothalamus function, which cause thermoregulatory dysfunction and high fever. close monitoring of temperature and thermal type and duration after the surgery, differentiate between central high fever and high fever caused by lung, urinary tract infections, 2 cases of postoperative neurologic fever for 3 to 5 days with body temperatures 38.5 to 39.3 °C. Keep the head cool, room temperature controlled between 20 to 25 °C, if patient's body temperature surpass 38.5 °C give physical cooling, an icepack, and wipe bath with warm water or alcohol. At the same time pay attention to the feet warm, prevent frostbite. Taking prescribed medication, control body temperature below 37.5 °C, be careful with hibernation drugs, in case of disturbance of consciousness. 2 cases were returned to normal after 3 days.

Water electrolyte imbalance

Main manifestations are low sodium, low potassium, sodium, and hypothalamus dysfunction related to diabetes insipidus. Serum sodium concentration < 135 mmol/L means hyponatremia, with outward manifestation of general weakness, indifference, sleepiness, pale face, anorexia, serious ones can get coma convulsions. Hypokalemia potassium concentration <3.5 mmol/L, can be characterized by loss of appetite, indifference, sleepiness, tendon reflex slow or disappear, heart palpitations, arrhythmia, etc. Among this group of cases, 3 cases are simple hyponatremia, 1 case of high sodium hypokalemia. These patients should closely observe their symptoms when nursing and regular monitoring their electrolytes. Patients with low sodium should eat and drink weak brine partial salty food, using prescribed 3% NaCl static drops slowly when necessary. Main symptom of high sodium level is thirsty,

should limit the intake of sodium, a small amount of water for many times, slowly add 5% glucose (isotonic solution), patients could be close to normal within 48 hours, every 12 hours monitoring the serum sodium to adjust rehydration. Patients of low potassium can eat bananas, jujube, etc., when necessary when the urine >40 mL/h can take prescribed oral or static drops of potassium. Symptoms can be alleviated about 2 week's treatment and nursing [7].

Intracranial bleeding

It usually occurs within 24 hours after surgery, patients with headache, nausea, vomiting, disturbance of consciousness, change of pupil and other vital signs, such as unclear vision may hint bleeding. Paying close observations, if any abnormal occurs timely notify the doctor and take corresponding processing. No case in this group had this complication.

Intracranial pneumatosis

An early complications of CSFR, due to the outside air through nose nasal then the defect in the base of skull fractures and finally into the intracranial. A small amount of air can cause no headache symptoms, whereas a large number of airs into the intracranial can cause pressure tension against brain tissues and aerosols cranial appear. One patient in this group got concurrent intracranial pneumatosis about 5 weeks after operation because of cerebrospinal fluid leakage, this patient has severe headache, CT shows his intracranial have gas signal, 3 days after nasal cerebrospinal fluid leakage repair operation the pneumatosis was gradually absorbed and the patient got self-healed.

Vision and vision disorders

It is connected with tumor oppressed optic nerve or intraoperative pull. To observe the skin infiltration of blood and the pupillary light reflex and the eye-ball activities. Give psychological comfort, explain the cause, and tell the patient it can generally restored by taking medicines. At the same time strengthen patrol, pay attention to safety, life care, put living items in good side vision, in order to fetch. 1 case in this group has preoperative visual acuity, by giving visual nerve nutrition therapy postoperatively, was found in better condition in the follow-up check-up one month after the treatment.

Pituitary function decline

It has a high incidence of pituitary adenomas and preoperative function impair. Due to tumor oppression, surgery stimulation and resection of part of the pituitary gland tissue, main manifestations are depression, anorexia, slow, poor memory, etc. 1 patient in this group has this symptom 3 weeks after the surgery, by giving hormone replacement therapy, timely review of hormone levels and gradually decrease the amount of dosage, this patient's condition improved significantly after 4 weeks.

3.3. Discharge guidance

Strengthen nutrition, eat more fresh food with high protein and rich in vitamins and crude fiber to prevent constipation.

Pay attention to rest, do not engaged in heavy manual labor 6 months after discharged from hospital, avoid sudden effort and excessive head motion that could cause increased intracranial pressure and result in cerebrospinal fluid leak [8].

Taking prescribed medication, pay regular visit to the hospital, recheck CT a year after discharge from the hospital.

4. Conclusion

The pituitary gland is an important endocrine organ, its anatomical structure is complex which increased the risk of surgery, caused more deadly complications and seriously affect the prognosis of the disease. Carry on thorough careful observation according to the characteristics and causes of postoperative complications, providing timely and effective nursing measures, correctly executing the medical scheme, which can effectively reduce the occurrence of complications, promote patients' rehabilitation

and improve the success rate of surgery.

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