

# A Nursing Case of a Child with Cerebral Palsy and Epilepsy Undergoing Oral Treatment under General Anesthesia in Outpatient Clinic

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## Abstract

To explore the nursing care of pediatric patients with cerebral palsy accompanied by epilepsy under general anesthesia. **Methods:** The feasible clinical implementation strategies were put forward from 5 aspects of nursing evaluation, nursing diagnosis, intraoperative safety and management, postoperative nursing, health education and follow-up to strengthen the safe use of general anesthesia and induction drugs and prevent the occurrence of complications. **Conclusion:** After targeted preoperative preparation, treatment and treatment, the monitoring indicators of vital signs of the children were stable, and no accidents occurred during treatment. Oral treatment under general anesthesia in the outpatient department is feasible for children with cerebral palsy and epilepsy.

## Keywords

**Outpatient Treatment Under General Anesthesia; Cerebral Palsy; Epilepsy; Oral Care for Children.**

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## 1. Introduction

Cerebral palsy (CP) is a neurodevelopmental disorder characterized by abnormalities in muscle tone, movement, and motor skills that can be attributed to damage[1] to the developing brain. There are more than 6 million children with cerebral palsy in China, with an incidence of about 1.5‰ to 4‰[2]. Two to three out of every 1,000 live births suffer from cerebral palsy, which has a variety of causes, leading to brain damage that affects movement, posture and balance[3]. Factors associated with this are gestational age and birth weight, and identified risk factors including preconception, prenatal, perinatal, and postpartum CP can be divided into spasticity (80%), dyskinesia (15%), and ataxia (5%)[4]. Epilepsy is a chronic disease of the brain caused by a variety of reasons, which is characterized by repeated episodes of excessive discharge of neurons in the brain, causing sudden and temporary brain dysfunction, and clinical consciousness, movement, sensation, mental or autonomic nervous dysfunction. The incidence of epilepsy in our population is about 0.5%, and the number of new cases reaches 300,000 to 400,000 each year, and some epilepsy patients are accompanied by cerebral palsy (spastic diplegia or quadriplegia); The latter is a general term for many different forms of neuromuscular dysfunction, which is caused[5] by anatomical damage to the brain. Due to the children with cerebral palsy, the ability of autonomous behavior is weak, even if they reach the school age, the visual and hearing function is normal, but their logic is insufficient, thinking ability is weak and observation is poor, the face of difficulties can not be overcome through their own efforts, to a certain extent, increase the difficulty[6] of clinical care. Pediatric dental general anesthesia (DGA) is a behavior management technique that uses anesthetic drugs to make children enter a state of unconsciousness, and is jointly completed by experienced and skilled anesthesiologists and pediatric dentists under close supervision. DGA can solve all kinds of dental problems in children's mouth in a one-time, painless situation, and at the same time, it can avoid children's fear of dentists to a certain

extent, protect children's physical and mental health, and improve their treatment compliance[7]. In this paper, the application of cerebral palsy with epilepsy in outpatient oral treatment under general anesthesia for nursing, achieved good results, now the nursing experience is reported as follows:

## 2. Case

The child, male, 15 years old, came to our hospital for treatment after his parents complained that the child had repeated pain for more than 1 month. Before 1 month, the child had repeated tooth pain, did not dare to bite, and was not treated. The child had a history of cerebral palsy with epilepsy, repeated limb convulsions and unconsciousness for more than 10 years. The child's parents denied that there was a family history of such seizures. Examination: 21, 36, 46 crown caries could be detected, the detection was not sensitive, cold slow pain, percussion discomfort, gingiva could be detected. 11, 12, 13, 14, 17, 24, 25, 34, 35, 37, 44, 45, 47 crown caries could be detected, but not sensitive, cold comparison teeth, percussion (-), gingiva could be detected. 15.16 Stump is not loose, gingival is red and swollen. Auxiliary examination: The child can not cooperate with X-ray examination, diagnosis of caries and pulpitis and stump of the whole mouth, treatment plan: 21, 36, 46 root canal treatment; 11, 12, 13, 14, 17, 24, 25, 34, 35, 37, 44, 45, 47 resin filling; 15, 16 pull out.

## 3. Care Evaluation

- 1) Admission method: Parents push wheelchairs into hospital.
- 2) The patient's mouth opening was greater than 2.5cm, the model of tracheal intubation tube was 6#, and the depth was 25cm.
- 3) Oral cleanliness: oral plaque index 3, dental calculus index 1.

Parents have a comprehensive understanding of cerebral palsy related diseases and lack of oral knowledge.

Family social situation: The child is taken care of by a nanny in daily life. The nanny has a primary school education, the patient is enrolled in a class for special children, the parents work full time, and the social and economic status is medium.

- 4) Systemic: the child is conscious and unable to speak or walk. The type of cerebral palsy is spastic, grade IV. The chest X-ray examination indicates thoracic scoliosis, and the nervous system is post-stroke and epileptic. Currently there are oral drugs for cerebral palsy (lamotrigine, sodium valproate) according to the doctor's advice.

## 4. Nursing Problems (Diagnosis)

- 1) Pain: It is related to pulpitis of the affected tooth and wound of tooth extraction after surgery.
- 2) Self-care defect: the child has a history of cerebral palsy and cannot eat or walk independently.
- 3) Lack of knowledge: related to the parents' lack of oral awareness.
- 4) Risk of respiratory tract obstruction and aspiration: with large head, short neck relatively large tongue, narrow nasal cavity, larynx and upper respiratory tract prone to retrolingual fall, saliva and respiratory secretions more prone to respiratory tract obstruction.

## 5. Specific Nursing Measures

### 5.1 Pre-treatment Nursing Measures

- 1) Set up a special management nursing team, the implementation of one-to-one special responsibility system

In view of this case, the department set up a special management and nursing team, the team members are composed of three senior nurses in the department, and the head nurse is the leader, to organize training on cerebral palsy and epilepsy related knowledge, general anesthesia operation nursing cooperation, and knowledge feedback. Due to the particularity of the children in this case, after

organizing experts to carry out difficult cases, the nursing team leader formulated a set of personalized nursing plan, and the key countermeasures were anesthesia nursing and nursing cooperation. After the plan is selected in the department, A nurse with strong communication ability and empathy will carry out one-to-one follow-up nursing for the children and their parents, such as psychological counseling, health guidance and other measures. Nurses B and C, who are skilled in operation and have rich experience in clinical cooperation, were selected as four-hand operation nurses and anesthesia nurses. Learn the treatment plan when the seizure, the child should immediately lie flat in the seizure, head to one side, clear the respiratory tract, keep the airway smooth while giving oxygen, put the dental pad between the upper and lower molars.

2) Give children a sense of security, increase the trust of family members to medical staff

Let the mother and nanny accompany the children throughout the whole process, inform the family members of the whole process of general anesthesia treatment, let the mother participate in the whole treatment process, and give family nursing to the children. On-site teaching was used to explain the root canal treatment and the related treatment knowledge of filling teeth, and to explain the whole mouth treatment plan, operation duration and postoperative precautions in detail to the parents.

3) Material preparation and environment preparation

The goods and equipment are fully prepared, so the goods within the validity period, the equipment function is intact, and the goods are prepared in place at one time, so as to avoid prolonging the treatment time due to incomplete preparation of the goods. The room temperature of the operating room is controlled at 24 ~ 26°C and the humidity is controlled at 50% ~ 60%.

4) Psychological nursing

Studies have shown that children's relaxed state of mind is conducive to the induction and maintenance of anesthesia, reducing anesthesia complications and anesthesia accidents. Therefore, when sending children and their parents to the operating room, nurses should try to reduce their anxiety, fear and tension and other bad emotions.

## 5.2 Nursing Measures During Treatment

1) Care to relieve pain to avoid inducing seizures

Throat pain after tracheal intubation is a common complication after general anesthesia in children, with an incidence of 30%-70%[8]. Before intubation (prevention of nasal injury), 5% compound lidocaine was applied on the surface of tracheal intubation as prescribed by the doctor, and furan nasal drops were used to enlarge the nose and reduce the damage caused by intubation to the nasal septum mucosa. Through the children's favorite music to soothe anxiety and divert attention.

2) Postural care

Due to the lateral curvature of the thoracic vertebrae of the child, adjust the appropriate chair position, the child is supine, the head is tilted later, and the mandibular plane is parallel to the horizontal plane when the mouth is kept wide open, and the maxillary plane is 45 degrees with the horizontal plane. After anesthesia, due to the longer operation time, the gel pad is placed in the pressure part of the child to prevent pressure sores, so as to avoid the shoulder of the child being squeezed[5]. During the operation, the temperature of the child was monitored and the circulation of the extremity was closely observed. The nurses in the operating room massaged the vulnerable parts of the patient for 3-5min at least every 2h and made a record.[9] At the same time, the soft pad was placed between the knee joint and ankle joint of both lower limbs to protect the bone process of the child; To prevent intraoperative accidental injury around the eyes, apply erythromycin ointment and eye mask after intubation to protect the eyes.

3) Observation and monitoring

After entering the room, ECG monitoring should be carried out near the bed, continuous monitoring of blood pressure, heart rate, respiration, electrocardiogram, etc., and record in the anesthesia record sheet. Assist the anesthesiologist to intubate the trachea, fix the intubation and connect the anesthesia

machine. Pay attention to the placement of the position to protect the tube from protruding, bending, or breaking, and use gel pads on the bony prominens of the heel, wrist and other pressure parts to prevent pressure sores.

#### 4) Care to prevent respiratory obstruction and aspiration

No water and fasting for 8h before operation to ensure complete gastric emptying. The head of the child was tilted to one side after general anesthesia. Shoulder pad 6 ~ 8cm soft pad to make the respiratory tract horizontal; Timely clean up respiratory secretions use the appropriate thickness of the suction tube before and after each suction to increase oxygen flow, the suction time does not exceed 15s the suction pressure is 0.02 ~ 0.05mPa to avoid the suction time is too long, high pressure caused by laryngeal spasm, arrhythmia, blood pressure changes, etc. During the whole treatment process, the operation under the rubber barrier is performed to protect the oral Angle and mucous membrane of the children and prevent tooth debris from falling down the throat.

### 5.3 Post-treatment Nursing Measures

#### 1) Cleaning care

After the end of the treatment, the oral cavity should be fully washed with normal saline and sucked out with negative pressure suction device to avoid the foreign bodies of auxiliary materials and cotton balls left in the mouth during the treatment, and the debris or tissue foreign bodies generated will be carried into the trachea, causing suffocation and respiratory infection and injury. Assist the anesthesiologist to complete tracheal extubation, apply eye film, and clean the child's[10] face. Observe the preservation of bleeding from tooth extraction and hemostatic materials.

The light in the resuscitation room should be slightly dark, keep the indoor air fresh, and try to avoid odor and noise stimulation in the room to avoid irrit[3]ability of children. By the mother and the nanny to the child's language awakening, that is, every 20 s gently call the child's name 1 times, and touch the forehead, shake hands and other behaviors to eliminate the child's fear, and then in a soothing tone to tell the child's mother to accompany, so that it feels the parents' love[11].

#### 2) Health education

Inform parents that the child should keep lying position as far as possible after going home, and can transition from warm water to liquid food, and the nasal and throat discomfort after intubation can be gradually relieved after a few days. After surgery, parents were given ice packs to relieve the pain of tooth extraction wounds, and explained to the family that local anesthetics were added during general anesthesia, reminding parents not to let the children suck or bite the soft tissue at the injection site to avoid damage. Then account for root canal treatment health education, as well as account of nanny and mother brushing ways and habits[12].

## 6. Nursing Results and Effect Evaluation

The whole oral treatment plan was completed. The parents of the children actively cooperated and were satisfied with the operation effect. They could also partially repeat the content of health education. 1 day after the operation, the phone visit: "the parents of the child complained that the child's saliva was a little bloodshot", which was told that it was a normal phenomenon after tooth extraction, and asked for discomfort follow-up. 1 week after the operation: check the tooth condition is good without discomfort, oral health status is ok. One month after the operation, telephone return visit: "parents of the child complained that the child's eating was more fragrant than before treatment".

## 7. Discussion and Conclusion

Because of the special nature of cerebral palsy children often neglect their oral health inspection, when they come to see a doctor, the main complaint has developed into pulpitis, caries. Through the whole mouth treatment of general anesthesia, greatly reduce the number of visits and treatment to the pain of children, but also reduce the home because of the children's own defects and repeated psychological burden brought by the clinic. General anesthesia at the same time to do a good job in

the operation of medical care four-hand operation, children's body, corneal protection, pipeline and other safety control; Postoperative monitoring, detailed postoperative precautions and oral health education will greatly improve the medical quality and reduce the risk of general anesthesia surgery, so we should do a good job in the clinical nursing of children with cerebral palsy general anesthesia oral surgery, combined with the actual situation of children to prepare personalized treatment plans, grasp the precautions, and parents of children with patience and communication.

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