

# Application Effect of Comprehensive Nursing Intervention Model in Nursing of Children with Epilepsy

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At present, the epilepsy disease of children in the growing groups of children and adolescents in my country is a very common mental disease, and it is very important to strengthen the early comprehensive treatment care and intervention therapy for children with epilepsy. The purpose of this study is to deeply explore the specific application effect of this comprehensive clinical nursing intervention model in the clinical nursing treatment of early childhood epilepsy patients. In this research, 80 cases of children with new-type pediatric epilepsy who received rehabilitation treatment in our hospital from August 2018 to December 2019 were selected as the observation objects of the clinical study. The children in the control group received short-term routine rehabilitation care, while the observation group adopted short-term comprehensive rehabilitation care and interventional treatment in parallel with long-term clinical rehabilitation care. The results of the research analysis show that the observation group's hospitalization satisfaction of children with acute epilepsy is 96.73%, which is significantly higher than that of the general control group, 85.32%. The compliance rate of hospitalized children with acute epilepsy in the observation group was 95.22%, which was significantly higher than that of the general control group, 83.48%. The difference was obviously statistically significant ( $p < 0.05$ ). It can be seen from this that the treatment of children with epilepsy early adopting comprehensive nursing intervention mode can effectively improve the effect of epilepsy treatment.

**Key Words:** pediatric epilepsy, comprehensive care, intervention mode, application effect

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Pediatric epilepsy belongs to a typical nervous system epilepsy syndrome. It is a type of acute seizure caused by paroxysmal cerebellar nerve dysfunction in children. It is prone to repeated and continuous seizures. Since the growth age of children with epilepsy is generally younger, once the children's cerebral cortical nerves are strongly stimulated, it will directly lead to an excessively abnormal brain discharge phenomenon, and the children will have cerebral muscle elastic convulsions. The comprehensive treatment and nursing technical intervention will take each child's body as a nursing center, and provide scientific and

effective targeted comprehensive care for each child according to their own physiological characteristics, and strengthen the effect of comprehensive treatment and care for the child.

Children's compliance with treatment. Therefore, comprehensive treatment care and interventional treatment models are undoubtedly very important in the early care of children with epilepsy.

Pediatric epilepsy has a great impact on children, seriously affecting the children's quality of life and learning. Rzezak used a comprehensive neuropsychological approach to match age, gender,

and sociodemographic factors between children with epilepsy and healthy children to assess the memory and mobility of children with epilepsy<sup>1</sup>. Hashi retrospectively evaluated the relationship between genetic polymorphisms and the specific treatment effect of comprehensive care interventions for epilepsy patients with additional CLD therapy<sup>2</sup>. Hunter collected clinical data of 88 children with epilepsy who underwent a comprehensive psychological evaluation, and retrospectively collected the use of education and social resources. The relevant variables of comprehensive nursing intervention and application effects have been determined<sup>3</sup>. Through research, Sharma found that brain-derived neurotrophic factor is a CREB-dependent gene and plays a crucial role in the pathogenesis of epilepsy and central comorbidities associated with childhood epilepsy<sup>4</sup>. Dooren pointed out that a comprehensive and accurate assessment is the key factor to make a correct diagnosis and provide the best treatment for children with epilepsy. A nurse is the key to your team members, which can promote safe, efficient and accurate tests on children<sup>5</sup>. In summary, the comprehensive nursing intervention model is of great significance for the treatment of children with epilepsy.

Dipika conducted a study using the HRQLP scoring method and found that compared with healthy children, the total score of epilepsy children and the scores of all sub-domains of PED were reduced. Compared with simple drug treatment, the comprehensive care model significantly improved the treatment effect<sup>6</sup>. Matricidal found that through the clinical manifestations, EEG characteristics and neuroimaging of children with three-way syndrome and related epilepsy, the EEG of children with epilepsy was abnormal and the prognosis was poor<sup>7</sup>. In order to determine the relevance of HRQT in children with drug-resistant epilepsy, Conway conducted a series of investigations and found that the age, sex, duration of epilepsy, age of caregiver, and the education level of caregivers in children with epilepsy were not related to HRQT<sup>8</sup>. Arulsamy emphasized that although there is no clear pathophysiological approach to study anxiety in children with epilepsy,

researchers have proposed many theories, including neurological and psychological approaches, which are also of guiding significance for the treatment of epilepsy in children<sup>9</sup>. Mammen pointed out in the article that epilepsy in children will seriously affect children's physical and mental health, thereby paralyzing the lives of children with epilepsy, and emphasizes that depression is also an important factor leading to epilepsy in children<sup>10</sup>. It can be seen that there are many ways to study the effect of comprehensive nursing intervention model in the care of children with epilepsy, but no significant progress has been made so far, and unremitting efforts are still needed.

This article is mainly to explore the specific application effect of comprehensive nursing intervention model in the care of children with epilepsy. In this subject study, 80 cases of children with new-type pediatric epilepsy disease who received rehabilitation treatment in our hospital from August 2018 to December 2019 were selected as the objects of clinical research observation. The results of the study show that the results of the research analysis show that the comparison of hospitalization satisfaction of children with acute epilepsy in the observation group is 96.73%, which is significantly higher than that of the general control group, which is 85.32%, and the efficiency comparison of hospitalization compliance of children with acute epilepsy in the observation group is 95.22 %. Which was significantly higher than that of the general control group, 83.48%. The difference was obviously statistically significant ( $p < 0.05$ ). The innovation of this study is to systematically integrate comprehensive nursing procedures in clinical practice, and formulate comprehensive nursing and nursing based on many aspects such as nursing process, nursing methods, nurse service evaluation system, discharge guidance for children with epilepsy, and nursing quality control. It can be seen that the innovation in this paper maximizes the nursing level of the comprehensive nursing intervention model.

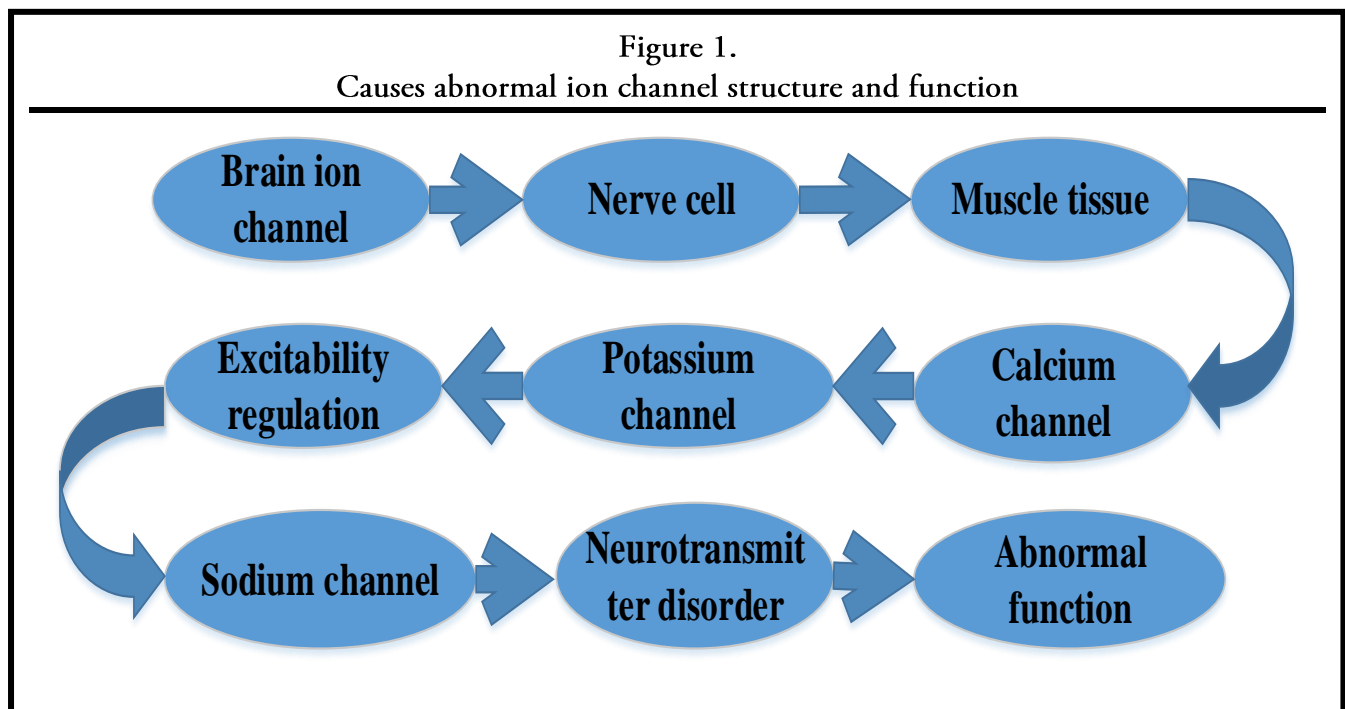
## MATERIALS AND METHODS

### Pathogenesis of epilepsy in children

The pathogenesis of childhood epilepsy is not yet clear, and research scholars are currently

focusing on several possible mechanisms such as ion channel theory and abnormal network theory<sup>11</sup>. Ion channels are the basis for the excitability regulation of nerve cells and muscle tissue in the body. When various reasons lead to mutations in its coding gene, it will affect the function of the ion channel itself, leading to seizures in children<sup>12</sup>. At present, the research on the correlation between sodium, potassium and calcium ion channels and the incidence of epilepsy in children is relatively accurate. As shown in Figure 1, modern medicine believes that various causes lead to abnormal gene expression, causing neurotransmitter or modulator dysfunction that regulates ion channels, causing

abnormal changes in ion channel structure and function<sup>12</sup>. This abnormal change can further lead to abnormal transmembrane movement of sodium, potassium, calcium and other ions, resulting in continuous abnormal discharge of neurons in the brain<sup>13</sup>. In children with epileptic seizures, the frequency of abnormal discharge increases from the normal 1-50 to 1000-8000 times per second. This high-frequency epileptiform discharge can spread rapidly through synapses and cause abnormal brain function. The mechanism is related to the activation of silent synapses and the rapid recovery of synaptic vesicles<sup>14</sup>.



Experts of the Chinese Academy of Clinical Pediatric Epilepsy believe that the brain function of patients often has the susceptibility to repeated severe attacks of epilepsy in children, which is the most prominent pathological and physiological function characteristic of treating children with epilepsy<sup>15</sup>. Electrical stimulation originates from the amygdala of animals, and the terminal connections on the first-level synapses can connect with the next-level or more adjacent second-level neurons to form new synaptic end connections. Initial or irreversible abnormal synaptic terminal connections gradually become fixed, and animal pathologist researchers have found that the main

pathogenic component may be the proliferation of animal moss epithelial fibers and granulation<sup>16</sup>. The abnormal synaptic cell connector connects with a variety of abnormal cell substrates in the cellular molecular matrix layer that protrudes into the dentate gyrus, forming an abnormal circulating cell pathway<sup>17</sup>. By inhibiting the formation of mossy fiber buds, recording abnormal currents in these new connection networks can raise the threshold of seizures in children<sup>18</sup>. Intraperitoneal injection of pilocarpine in experimental rats can cause epileptic seizures in animals. After the injection is stopped, the epileptic seizures in experimental animals will continue<sup>19</sup>.

## RESEARCH OBJECTS AND METHODS

### Object selection

In this research, 80 cases of children with new type of epilepsy who received rehabilitation treatment in our hospital from August 2018 to December 2019 were selected as the observation object of clinical research. Each group was randomly assigned to two groups, and 40 cases in each of observation group and clinical control group. The children in the control group received short-term routine rehabilitation nursing, and the

two children in the observation group were combined with short-term comprehensive rehabilitation nursing and interventional treatment mode for long-term clinical rehabilitation nursing. The related basic clinical data of the two groups of patients were compared and explored, such as the age, gender and clinical condition of the children, and the difference was not statistically significant ( $p>0.05$ ). As shown in Table 1, the detailed information about the education level and working years of nurses implementing comprehensive nursing are also considered.

Table 1.

Details of nurses' education level and working years

Working years	Average age	College degree	Bachelor degree	Above Bachelor degree
One to three years	28±2.5	38	54	63
Three to six years	30±1.8	42	33	75
More than six years	34±2.0	21	28	44

### Nursing intervention methods

The control group can take routine care.

The observation group adopted a comprehensive nursing intervention model, the specific contents are as follows: Health management education. Use a variety of easy-to-understand teaching languages to clearly explain the specific etiology and mechanism of the epilepsy, the specific emergency treatment measures, the emergency treatment measures and other treatment precautions when the disease recurs to enhance the correct cognitive understanding of various diseases in patients with acute epilepsy in large and small children, and improve disease compliance<sup>20</sup>. Make good mental health care. Communicate language with many children with epilepsy disease at the same time to eliminate some children's fear of strange surrounding environment. Its effective spiritual comfort and psychological encouragement have gradually established its self-confidence in receiving treatment. Nursing after repeated seizures<sup>21</sup>. A tongue depressor or gauze should be placed between the upper and lower molars of children with epilepsy in children to avoid tongue cracking or bite<sup>22</sup>. Pay attention to diet daily care. According to the actual work situation of epilepsy patients, formulate a set of rational and personalized epilepsy diet treatment plan, and guide the epilepsy patients to eat a variety

of foods rich in vitamins in high amounts. Intervene in life. Instruct children with epilepsy and pediatric patients to pay attention to maintaining healthy and regular and reasonable sleep, and appropriately strengthen physical exercise, but pay special attention to reasonable control of daily physical activity to avoid excessive fatigue.

### Observation index

Observation standards include the following: Children's knowledge of epilepsy-related knowledge. The clinical test scales made by experts in various departments of our hospital are used to comprehensively score the children under examination. The higher the comprehensive score test results of the children, the better the comprehensive grasp of clinical medical knowledge. The quality of family living conditions of the children Comprehensive score<sup>23</sup>. Every year, the life quality score scale of children with epilepsy in hospitals in my country is used as the main standard value for life scores. Evaluate the effect of rehabilitation treatment. Taking the 2010 National Epilepsy Comprehensive Treatment Hospital Efficacy Evaluation Standard Report as the main reference, the effects of treating epilepsy can be divided into four types: complete cure, marked effect, effective and ineffective treatment. Among

them, the recovery was a case in which the early clinical reaction symptoms of cerebral epilepsy in a child obviously disappeared, and the limb movement function and other daily life self-care ability returned to normal. Effectively relieves the early symptoms of headache, physical activity and comprehensive ability of daily life in children<sup>24</sup>. Ineffectiveness was compared with patients before long-term care, the symptoms of the body did not improve significantly, no significant changes in physical functions of the limbs and daily life adaptability. The total treatment effectiveness index is the sum of the overall recovery, marked effectiveness and sustained effectiveness index<sup>25</sup>.

#### Data statistics

After the data in this study are verified to be correct, a metrology database is established, and the data in the metrology data database is expressed

with an accuracy  $x \pm s$  angle. Using p or t method to test, the count result data is expressed as a percentage coefficient formula,  $p < 0.05$  as the main difference value has important statistical research significance. The application mode spsta18.0 formal verification test can be used to verify the normality analysis of variance for the results of data comparison among multiple groups.

## RESULTS

### Comparison results of treatment compliance rate between observation group and control group

The results of the study show that the treatment compliance rate of epilepsy children in the observation group using the comprehensive nursing intervention model can reach 98.34%. As shown in Table 1, which is higher than 86.17% in the control group receiving traditional routine care. It has statistical significance ( $P < 0.05$ ).

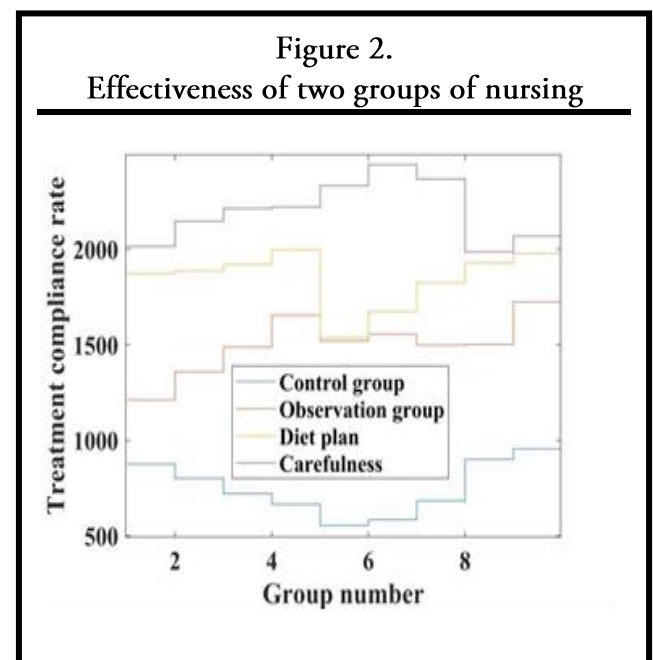
Table 2. Treatment compliance rate chart				
Group	Number of children with epilepsy	Before nursing intervention	After nursing intervention	Gap value
Observation group	40	85.66	98.34	19.36 $\pm$ 2.23
Control group	40	75.28	86.17	25.10 $\pm$ 1.28
X <sup>2</sup>	/	9.52	11.38	16.64
P	/	P<0.05	P<0.05	P<0.05

### Comparison results of nursing effect between observation group and control group

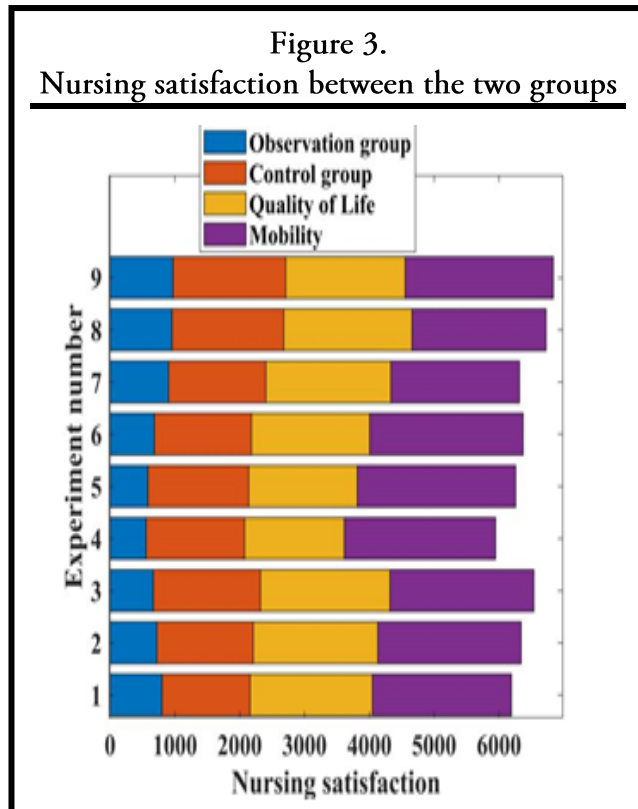
As shown in Figure 3, the results of the study show that the effective rate of nursing care of epilepsy children in the observation group with comprehensive nursing intervention mode can reach 95.22%, which is significantly higher than the 83.48% of the control group receiving conventional care. It has statistical significance ( $P < 0.05$ ).

### Comparison of nursing satisfaction between observation group and control group

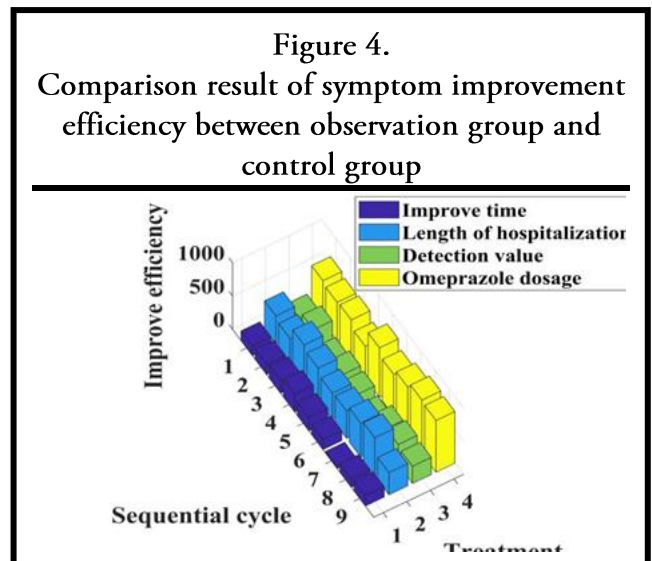
As shown in Figure 3, after the nursing, the follow-up visits to children with epilepsy and their family members revealed that the observation satisfaction of children with epilepsy using the comprehensive nursing intervention model was as high as 96.73%, significantly higher than the control group 85.32%. The difference is statistically significant ( $P < 0.05$ ).



### Analysis of the comparison result of symptom improvement efficiency between observation group and control group

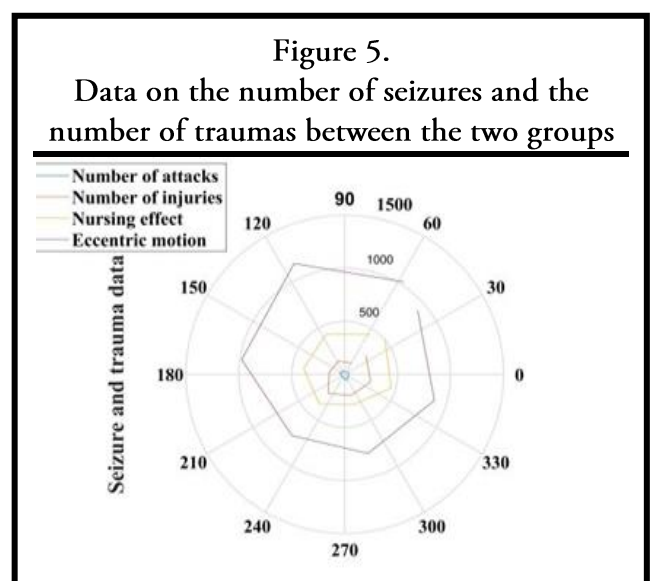


As shown in Figure 4, the results of the study showed that the symptoms improvement time and hospitalization time of children with epilepsy were different. The observation group with comprehensive nursing intervention model had symptoms improvement time of  $(5.01 \pm 1.45)$  days and hospitalization time  $(11.28 \pm 1.26)$  days, which was shorter than in the control group. The symptoms improvement time  $(5.27 \pm 2.17)$  days and hospitalization time  $(15.25 \pm 1.17)$  days in children with epilepsy proved that the comprehensive nursing intervention model had a higher improvement rate in epilepsy symptoms than the traditional nursing model.



### Analysis on the results of comparison between the number of seizures and the number of traumas in children after nursing intervention

As shown in Figure 5, the study found that the average number of seizures per week in the observation group was  $(3.13 \pm 1.26)$  times, and the average number of trauma occurrences was  $(1.6 \pm 0.17)$  times per week after intervention in the comprehensive care model. The frequency was  $(4.24 \pm 0.31)$  times, and the average number of trauma occurrences per week was  $(2.5 \pm 0.29)$  times. Statistical significance, which is enough to prove the high safety of comprehensive nursing intervention model nursing.





## DISCUSSION

Children often have epilepsy symptoms such as systemic convulsions, abnormal consciousness, and autonomic nervous system dysfunction. Once a child is found to have pediatric epilepsy, if it is not handled properly, it is easy to directly cause various irreversible ischemia, hypoxia, etc. Inside the brain of the body of the epilepsy patient, causing irreversible brain damage. The development of brain function has an adverse effect, which seriously reduces the quality of education and learning and daily life of adult children. Clinically, it is mainly used to apply pediatric drug nursing to treat undergraduate diseases. However, in actual clinical treatment, it is seriously affected by many factors such as the length of the child's disease course, long treatment cycle, and repeated illness. It is relatively poor, which seriously affects its early clinical nursing effect. Therefore, in the development of children's epilepsy nursing treatment in my country, it is very important to strengthen effective epilepsy nursing treatment measures to improve the clinical treatment and compliance of children with epilepsy.

The research in this article gives the following two groups of children with epilepsy to give the following three levels of comprehensive medical treatment: psychological therapy intervention, health psychological education, drug therapy guidance, emergency treatment technology guidance, and daily intervention nursing. Obtain full trust of hospitalized children through competitive methods such as health counseling intervention and health psychological education, so that they can actively cooperate with the work of hospital nurses, and at the same time correct the misunderstanding of family members of children with epilepsy, ease their psychological burden, and make them actively assist medical staff to complete relevant clinical operations. At the same time, give emergency treatment instructions to enable children to escape from risks in time of seizures, and life interventions can help prevent seizures from recurring and lay the foundation for the children's rehabilitation. Summing up the research results of this article, we can see that the use of advanced comprehensive epilepsy nursing

intervention mode in the early stage of children with epilepsy can effectively improve the effect after epilepsy treatment.

## REFERENCES

1. Rzezak P, Guimarães CA, Guerreiro MM, Valente KD. The impact of intelligence on memory and executive functions of children with temporal lobe epilepsy: Methodological concerns with clinical relevance. *European Journal of Paediatric Neurology*. 2017/05/01/ 2017;21(3):500-506. doi:https://doi.org/10.1016/j.ejpn.2016.12.010
2. Hashi S, Yano I, Shibata M, et al. Effect of CYP2C19 polymorphisms on the clinical outcome of low-dose clobazam therapy in Japanese patients with epilepsy. *European Journal of Clinical Pharmacology*. 2015/01/01 2015;71(1):51-58. doi:https://doi.org/10.1007/s00228-014-1773-z
3. Hunter RM, Reilly C, Atkinson P, et al. The health, education, and social care costs of school-aged children with active epilepsy: A population-based study. *Epilepsia*. 2015;56(7):1056-1064. doi:https://doi.org/10.1111/epi.13015
4. Sharma P, Kumar A, Singh D. Dietary flavonoids interaction with CREB-BDNF pathway: an unconventional approach for comprehensive management of epilepsy. *Current neuropharmacology*. 2019;17(12):1158-1175. doi:https://doi.org/10.2174/1570159X17666190809165549
5. Gonsalves CH. Nursing Role on the Epilepsy Monitoring Unit: A Historical Perspective. *Journal of Pediatric Epilepsy*. // 2016;05(04):176-181. doi:https://doi.org/10.1055/s-0036-1584930
6. Bansal D, Azad C, Gudala K, Dasari A. Predictors of health related quality of life in childhood epilepsy and comparison with healthy children: findings from an Indian study. *Turkish journal of medical sciences*. 2017;47(2):490-498. doi:https://doi.org/10.3906/sag-1511-148
7. Matricardi S, Spalice A, Salpietro V, et al. Epilepsy in the setting of full trisomy 18: A multicenter study on 18 affected children with and without structural brain abnormalities. *American Journal of Medical Genetics Part C: Seminars in Medical Genetics*. 2016;172(3):288-295. doi:https://doi.org/10.1002/ajmg.c.31513
8. Conway L, Smith ML, Ferro MA, et al. Correlates of health-related quality of life in children with drug resistant epilepsy. *Epilepsia*. 2016;57(8):1256-1264. doi:https://doi.org/10.1111/epi.13441
9. Arulsamy Alina SMF. The impact of epilepsy on the manifestation of anxiety disorder. *International Journal of Nutrition Pharmacology Neurological Diseases* 2016;6(1):3-11
10. MAMMEN KA, KUMAR S. A COMPREHENSIVE REVIEW ON COMORBID DEPRESSION IN PATIENTS WITH EPILEPSY. *Asian J Pharm Clin Res*. 2017;10(12):30-35. doi:http://dx.doi.org/10.22159/ajpcr.2017.v10i12.18938
11. Reilly C, Atkinson P, Das KB, et al. Factors associated with quality of life in active childhood epilepsy: A population-based study. *European Journal of Paediatric Neurology*. 2015/05/01/ 2015;19(3):308-313.

- doi:<https://doi.org/10.1016/j.ejpn.2014.12.022>
12. Jackson AC, Frydenberg E, Liang RPT, Higgins RO, Murphy BM. Familial Impact and Coping with Child Heart Disease: A Systematic Review. *Pediatric Cardiology*. 2015;04/01 2015;36(4):695-712. doi:<https://doi.org/10.1007/s00246-015-1121-9>
  13. Havu K. Limitation Periods in Damages Claims: Notes on a Finnish Supreme Court Precedent in the Context of the European Landscape. *Journal of European Competition Law & Practice*. 2016;7(6):401-406. doi:<https://doi.org/10.1093/jeclap/lpw033>
  14. Köse S, Çelebioğlu A. Validity and reliability of Turkish version of the scales of perceived stigma for children with epilepsy and their parents. *International Journal of Nursing Sciences*. 2018/07/10/ 2018;5(3):238-242. doi:<https://doi.org/10.1016/j.ijnss.2018.07.004>
  15. Joung WJ, Yi M. Hermeneutic Phenomenological Study on Caring Experience of the Mothers of Children with Epilepsy. *jkan*. 02 2017;47(1):71-85. doi:<https://doi.org/10.4040/jkan.2017.47.1.71>
  16. Oren A, Vandamme P, Schink B. Notes on the use of Greek word roots in genus and species names of prokaryotes. *International Journal of Systematic and Evolutionary Microbiology*. 2016;66(6):2129-2140. doi:<https://doi.org/10.1099/ijsem.0.001063>
  17. Ghazavi MG. G199(P) Audit of information provided to parents of children with epilepsy. *Archives of Disease in Childhood*. 2015;100(Suppl 3):A85-A86. doi:<http://dx.doi.org/10.1136/archdischild-2015-308599>. 193
  18. Greenshields S. An introduction to nursing children and young people with epilepsy. *British Journal of Nursing*. 2019;28(17):1115-1117. doi:<https://doi.org/10.12968/bjon.2019.28.17.1115>
  19. Ledet D, Aplin-Kalisz C, Filter M, Dycus P. A Pilot Study to Assess a Teaching Intervention to Improve Sleep-Wake Disturbances in Parents of Children Diagnosed With Epilepsy. *Journal of Neuroscience Nursing*. 2016;48(1):2-14. doi:<https://doi.org/10.1097/JNN.0000000000000179>
  20. Harrison C. Supporting children and young people with epilepsy. *British Journal of School Nursing*. 2016;11(2):73-74. doi:<https://doi.org/10.12968/bjsn.2016.11.2.73>
  21. Riquelme J, Saldias C, Martinez J, Fernandez F, Rivera E, Moya P. Polymorphisms in ABCB1 and ABCC2 genes in patients with drug-resistant epilepsy at Van Buren Hospital in Valparaiso, Chile. *Journal of the Neurological Sciences*. 2015;357:e155-e156. doi:<http://dx.doi.org/10.1016/j.jns.2015.08.523>
  22. Neale M. Efficacy and safety of cannabis for treating children with refractory epilepsy. *Nursing children and young people*. 2017;29(7):32-37. doi:<https://doi.org/10.7748/ncyp.2017.e907>
  23. Momeni M, Ghanbari A, Bidabadi E, Yousefzadeh-Chabok S. Health-Related Quality of Life and Related Factors in Children and Adolescents With Epilepsy in Iran. *Journal of Neuroscience Nursing*. 2015;47(6):340-345. doi:<https://doi.org/10.1097/JNN.0000000000000173>
  24. Brook HA, Hiltz CM, Kopplin VL, Lindeke LL. Increasing Epilepsy Awareness in Schools: A Seizure Smart Schools Project. *The Journal of School Nursing*. 2015;31(4):246-252. doi:<https://doi.org/10.1177%2F1059840514563761>
  25. C. H. Neeharika Rao, Lalitha Tanjore Arunachalam US. Immunohistochemical Evaluation of Nucleotide-Binding and Oligomerization Domain 1 and Nucleotide-Binding and Oligomerization Domain 2 Receptors in Periodontal Health and Disease. *J Nat Sci Biol Med*. 2020;11(2):145-150. doi:10.4103/jnsbm.JNSBM