Journal of Medicines Development Sciences, 2026, Volume 11, Issue 3
https://bbwpublisher.com/journal/JMDS
ISSN Online:2382-6371
ISSN Print:2382-6363

Observation on the Clinical Efficacy and Safety of Vitamin D Combined with Tiapride in the Treatment of Tic Disorders in Children

Shihao Tai*

Baoying County People's Hospital, Yangzhou 225800, Jiangsu, China

Author to whom correspondence should be addressed.

Copyright: © 2026 Author(s). This is an open-access article distributed under the terms of the Creative Commons Attribution License (CC BY 4.0), permitting distribution and reproduction in any medium, provided the original work is cited.

Abstract: *Objective:* To explore the benefits of tiapride combined with vitamin D in the intervention of children with tic disorders. *Methods:* 60 children with tic disorder who were diagnosed and treated in our hospital from January 2025 to December 2025 were randomly divided into groups. The control group was given only tiopride monotherapy, and the observation group was given tiopride + vitamin D. *Results:* The total effective level obtained by the observation group was significantly better than that of the control group, and the Yale Comprehensive Tic Severity Scale score decreased more significantly than that of the control group ($P < 0.05$). The occurrence of adverse reactions during the treatment of the two groups of children was similar ($P > 0.05$). *Conclusion:* The intervention method of tiapride combined with vitamin D can effectively relieve tic-related symptoms in children and improve the overall treatment effect. At the same time, it will not increase the risk of adverse reactions, and the safety of clinical application is relatively reliable.

Keywords: Childhood tic disorder; Vitamin D; Tiapride; Clinical efficacy; Medication safety

Online publication: September 16, 2026

1. Introduction

Childhood tic disorder is a common neurodevelopmental disorder in pediatric clinical practice. It mostly occurs in school-age children. It mainly manifests as involuntary, repeated, and rapid muscle twitches and vocal tics. The delay and recurrence of the disease will directly affect the children's learning status, social ability, and mental health. In severe cases, it will cause lifelong psychological and behavioral abnormalities in children [1]. The current clinical treatment of this disease relies on drug intervention as the core method. Tiapride is a commonly used drug for the treatment of tic disorders in children. It can effectively suppress abnormal nerve excitement and relieve tic symptoms. However, single use of a drug has limited effect on improving the symptoms of some children, and long-term single use of a drug makes it difficult to control the recurrence of the disease completely [2]. In recent years, relevant clinical studies have found that the

onset of tic disorder in children is closely related to vitamin D deficiency. Vitamin D is not only involved in human bone metabolism, but also regulates the development of the central nervous system and the secretion of neurotransmitters. Insufficient vitamin D levels will increase the incidence of tic disorder in children and aggravate the clinical symptoms of children [3]. This study selected 60 children with tic disorder admitted to our hospital in 2025 as research samples to analyze the clinical application value and safety performance of this combined treatment plan.

2. Materials and methods

2.1. General information

A total of 60 children with tic disorder admitted to our hospital from January 2025 to December 2025 were selected and divided into two groups of 30 cases each by the random number table method. There were 16 males and 14 females in the control group, aged 5 to 13 years old, with an average age of (8.26 ± 2.15) years, and the disease duration was 4 to 22 months, with an average of (12.36 ± 3.25) months; in the observation group, there were 17 males and 13 females, aged 4 to 14 years, with an average age of (8.53 ± 2.09) years, and the disease duration was 3 to 23 months, with an average disease duration of (12.68 ± 3.12) months. There was no statistical difference in the baseline data of gender, age, and disease course between the two groups ($P > 0.05$), indicating they were comparable. Inclusion criteria: Diagnosed with childhood tic disorder, aged 4-14 years, and family members gave informed consent to be included. Exclusion criteria: Children with mental or cognitive impairment who are difficult to cooperate, allergic to the tested drugs, and children who have received drug treatment related to this disease in the past 3 months.

2.2. Method

Both groups of children received unified basic intervention during the treatment period, including regular work and rest guidance, light diet intervention, reducing the use of electronic products, parent psychological counseling and behavior modification guidance, and the intervention continued for 8 weeks.

The children in the control group were treated with single tiapride, and the dosage was adjusted according to the age and weight of the children. The daily dosage of tiopride tablets was 3 to 5 mg/kg, taken twice in the morning and evening with warm water, and the treatment lasted for 8 weeks.

The children in the observation group were treated with vitamin D on the basis of the conventional medication of tiapride in the control group, oral vitamin D drops, and a daily supplement of 400IU vitamin D, taken once a day, for 8 consecutive weeks. During the treatment period, the children in both groups strictly followed the medication specifications and were prohibited from increasing or decreasing the dosage or stopping the medication without authorization. At the same time, they received regular physical examinations and recorded changes in physical status and symptoms.

2.3. Observation indicators

2.3.1. Comparative efficacy

Based on the degree of improvement of the child's tic symptoms combined with the decrease in the scale, marked effectiveness means that the child's muscle and vocal tic symptoms have basically subsided and the corresponding scale score has decreased by > 60%. Effective means that the child's various tic signs have been significantly alleviated and the scale score has decreased by 30% to 60%. Ineffective means that the

above standards are not met.

2.3.2. Compare Yale Comprehensive Tic Severity Scale scores

This scale is an international general tic disorder assessment scale, with a total score of 0 to 100. The higher the score, the more severe the child's tic symptoms. Complete the scale assessment before treatment and after 8 weeks of treatment.

2.3.3. Comparative security.

Mainly observe and record the occurrence of dizziness, gastrointestinal discomfort, drowsiness, and loss of appetite in children.

2.4. Statistical methods

Data were analyzed using SPSS 22.0. Measurement data are expressed as mean plus or minus standard deviation, and a parallel t-test is performed; count data are expressed as percentages, and a parallel χ^2 test is performed. $P < 0.05$ represents a significant difference.

3. Results

3.1. Comparison of therapeutic effects between the two groups

The therapeutic effect of the observation group was higher than that of the control group ($P < 0.05$); see **Table 1** for details.

Table 1. Comparison of efficacy between two groups [n (%)]

Group	Effective	Valid	Invalid	Always efficient
Control group (n = 30)	11 (36.67)	11 (36.67)	8 (26.67)	22 (73.33)
Observation group (n = 30)	16 (53.33)	13 (43.33)	1 (3.33)	29 (96.67)
χ^2				4.706
P				0.030

3.2. Comparison of Yale Comprehensive Tic Severity Scale scores between the two groups

The score of the observation group was lower than that of the control group ($P < 0.05$); see **Table 2** for details.

Table 2. Comparison of scores on the Yale Comprehensive Tic Severity Scale (mean ± SD, points)

Group	n	Pre-intervention score	Post-intervention score
Control group	30	58.32 ± 6.25	32.15 ± 5.12
Observation group	30	58.19 ± 6.31	21.36 ± 4.85
t value	-	0.079	8.317
P value	-	0.937	<0.001

3.3. Comparison of adverse reactions between the two groups

There was no significant difference in adverse reactions between the two groups ($P > 0.05$); see **Table 3** for details.

Table 3. Safety comparison between two groups [n (%)]

Group	Dizziness	Gastrointestinal discomfort	Lethargy	Loss of appetite	Overall incidence
Control group (n = 30)	2 (6.67)	1 (3.33)	1 (3.33)	0 (0.00)	4 (13.33)
Observation group (n = 30)	1 (3.33)	2 (6.67)	1 (3.33)	1 (3.33)	5 (16.67)
χ^2					0.000
P					1.000

4. Discussion

Childhood tic disorder is a neurodevelopmental abnormality with a high incidence in pediatrics. The clinical pathogenesis is multi-source and complex. Modern medical research has confirmed that the core pathological changes of the disease are concentrated in the dysfunction of the basal ganglia circuit of the central nervous system. The imbalance in the secretion of key neurotransmitters such as dopamine and γ-aminobutyric acid can cause abnormal regulation of the brain's motor cortex, which in turn triggers the body's repeated and involuntary muscle and vocal tics. Genetic factors, environmental stimuli, and abnormalities in body nutrition and metabolism are all important factors that induce or aggravate the disease. Among them, the common problems of insufficient intake and synthesis of vitamin D among school-age children are closely related to the onset and progression of tic disorder [4]. At present, the mainstream clinical intervention method is symptomatic treatment with oral drugs. Tiapride has become a commonly used drug in the treatment of tic disorders in children due to its good central nervous system regulation effect. This drug can specifically block dopamine D2 receptors in the limbic system and basal ganglia of the brain, reduce abnormal excitability of the central nervous system, and inhibit abnormal conduction of nerve impulses, thereby quickly controlling tic symptoms in children and improving their external clinical manifestations [5]. However, treatment with tiapride alone can only act on the level of neurotransmitter receptors, temporarily suppressing symptoms, and cannot correct basic problems such as weak neurological development and nutritional and metabolic imbalances in children. This is also the main reason why children with a single medication have limited improvement in symptoms, are prone to recurrence of illness, and the overall efficacy is not ideal. Vitamin D is not only a nutrient involved in human bone metabolism and calcium and phosphorus regulation, but is also an important regulatory factor in the development and maintenance of the function of the central nervous system. There are a large number of vitamin D receptors in the central nervous tissue, which can directly participate in many key processes such as nerve cell proliferation and differentiation, neural circuit construction, and neurotransmitter synthesis and release. It can improve the functional status of the central nervous system from the root cause of the disease and provide a reliable pharmacological basis for clinical joint treatment [6].

The efficacy data of this study can intuitively reflect that the total therapeutic effectiveness of the observation group is significantly better than that of the control group, which fully proves that the combined use of vitamin D and tiapride can significantly improve the overall therapeutic effect in children with tic disorder. The synergistic therapeutic effect formed by the two drugs is the key to improving the efficacy. The pharmacological advantage of tiapride is that it has a rapid onset of action, can inhibit abnormal discharges of the central nervous system in a short period of time, quickly relieve children's frequent tics, effectively

improve children's clinical symptoms in the acute phase, and reduce the immediate impact of tics on children's daily life and learning [7]. Vitamin D plays a long-term conditioning role. By activating vitamin D receptors in the central nervous system, it regulates the secretion balance of dopamine, serotonin and other neurotransmitters, repairs children's minor neurodevelopmental defects, gradually repairs the disordered basal ganglia nerve circuit function, and solves the shortcoming of single tiopride treatment that can only treat symptoms but not cure the underlying disease. The targets and mechanisms of action of the two drugs are completely different and can complement each other. Short-term drug symptomatic intervention combined with long-term neurological conditioning can comprehensively intervene in the occurrence and development of the disease, improve the clinical symptoms of children more comprehensively, significantly reduce the cases of ineffective treatment, and ultimately achieve a significant increase in the overall effectiveness of treatment.

The Yale Comprehensive Tic Severity Scale is a specialized assessment tool for tic disorders recognized by the international medical community. The scale score can accurately reflect the frequency, intensity, and interference of tic symptoms in children. Score changes can objectively quantify the intervention effect of the treatment plan and have extremely high clinical evaluation value. In this study, after 8 weeks of systemic treatment, the scale scores of the two groups of children dropped significantly, which means that both treatment options can improve the clinical symptoms of tic disorder in children, but the score of the observation group dropped significantly more, and the symptom improvement effect was more prominent. The core reason for this difference between groups is that the combined treatment regimen can sustainably stabilize central nervous system function. Tiapride can only temporarily suppress tic symptoms through receptor blockade. The symptoms are relieved while the drug effect is maintained, but it cannot continuously stabilize neurological function. Vitamin D can continue to participate in nerve cell metabolism and neural circuit repair, gradually improve the stability of the central nervous system, and reduce the probability of abnormal nerve excitation. As the treatment time increases, the frequency and amplitude of tic symptoms in children will continue to decrease, resulting in a more significant improvement in scale scores, and the overall treatment effect will be more stable and sustainable [8].

In the clinical treatment of pediatric diseases, both efficacy and safety need to be considered simultaneously. Children's liver and kidney functions are not yet mature, and drug metabolism and tolerance are relatively weak. Whether combined medication will increase the risk of adverse reactions is an important criterion for judging the feasibility of a treatment plan. The safety data of this study showed that there was no significant difference in the type, number of cases and total incidence of adverse reactions between the observation group and the control group, confirming that the treatment plan of vitamin D combined with tiapride has good medication safety, and the new vitamin D intervention will not increase the risk of medication for children. The reason is that vitamin D at conventional clinical therapeutic doses is an essential nutrient for the human body. It does not have obvious drug toxicity and will not cause irritation or damage to the liver, kidneys and gastrointestinal functions of children. At the same time, pharmacological studies have confirmed that there is no drug incompatibility between vitamin D and tiapride. When the two drugs are used at the same time, there will be no chemical reaction, no toxic or harmful substances, nor will the side effects of tiopride be enhanced or superimposed. The adverse reactions such as mild dizziness, gastrointestinal discomfort, and drowsiness that occurred in the two groups of children in the study were all minor and routine reactions in the clinical application of tiapride, and the symptoms were mild and could be relieved

on their own. The addition of vitamin D did not change the probability and severity of adverse reactions, which is enough to show that the combined regimen has a high safety factor and is suitable for long-term standardized treatment of school-age children.

Based on the clinical data and pharmacological mechanism analysis of this study, it is clear that in the clinical treatment of children with tic disorders, tiapride monotherapy can only achieve short-term symptom control, and the overall efficacy has certain limitations. On this basis, the combined use of vitamin D for adjuvant treatment can regulate central nervous function through multiple targets and multiple pathways, make up for the shortcomings of single-drug treatment, effectively improve the overall effectiveness of clinical treatment, reduce the severity of tic symptoms in children to a greater extent, and, at the same time, will not cause additional adverse drug reactions, taking into account the therapeutic effect and treatment safety.

Disclosure statement

The author declares no conflict of interest.

References

[1] Wang SS, 2025, Clinical Effect of Vitamin D Combined With Tiapride in the Treatment of Tic Disorder in Children. Jilin Medicine, 46(8): 1931–1934.

[2] Liang H, Liu YL, Yang XX, 2025, Effect of Tiopride Hydrochloride Tablets Combined With Shao Ma Zhiju Granules on Tic Disorders in Children. Chinese Medical Innovation, 22(23): 10–14.

[3] Wang N, 2025, Observation on the Clinical Effect of Tiapride Combined With Vitamin B12 in the Treatment of Tic Disorders in Children. Chinese Community Physicians, 41(18): 52–54.

[4] Wang ML, Wu GL, Si YH, et al., 2025, Effects of Bifidobacterium Triple Live Bacteria Combined With Tiopride Treatment on Clinical Symptoms, Immune Function and Intestinal Flora in Children With Tic Disorder. Journal of Hebei Medical University, 46(4): 430–435.

[5] Liao WJ, Luo JJ, Zhu HF, et al., 2025, Analysis of the Efficacy of Clonidine Transdermal Patch Combined With Tiapride in the Treatment of Children With Tic Disorder. Chinese Medical Innovation, 22(10): 10–13.

[6] Gao QY, 2025, Clinical Efficacy of Tiopride Hydrochloride Tablets Combined With Exposure Reaction Prevention in the Treatment of Tic Disorders in Children. Medical Clinical Research, 42(3): 559–561.

[7] Li Y, Liu D, Pan C, et al., 2025, Observation on the Efficacy of Anshen Dingzhi Prescription Combined With Vitamin D3 Drops in the Treatment of Children With Tic Disorder. Shenzhen Journal of Integrated Traditional Chinese and Western Medicine, 35(3): 1–4.

[8] Dong FY, Zhuo XF, Chen JJ, et al., 2024, Analysis of the Efficacy of Clonidine Combined With Vitamin D3 in the Treatment of Children With Tic Disorder and Its Impact on Neuroimmune Function. Central South Journal of Medical Sciences, 52(5): 815–818.

Publisher's note

Bio-Byword Scientific Publishing remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.