

# ***"Preventive Treatment" Combined with Sequential Therapy to Prevent Precocious Puberty in Children***

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**Abstract:** Childhood precocious puberty is a disease of premature development of children that has been increasing year by year with economic development, social and family environment changes in recent years, and has serious harm to children's growth and development. Parents have little knowledge about precocious puberty, and western medicine treatment has serious side effects. In order to reduce the impact of precocious puberty on children's growth and development and provide new ideas for the diagnosis and treatment of precocious puberty in children, the idea of "preventing disease" in traditional Chinese medicine combined with sequential therapy is used to explore children's sexuality. Premature prevention.

The National Organization of Children's Endocrinology currently defines precocious puberty as the development of breast development, etc. in girls before the age of 8, and secondary sexual characteristics such as testicular development in boys before the age of 9. Girls are more common, with a male-to-female ratio of 1:10[1]. In recent years, studies have shown that children's puberty development time has a tendency to advance, but the international standard is still mostly used in the past. Children are the future and hope of a country and a nation, and precocious puberty has a great impact on children's growth and social development [2]. On the one hand, it will make children short in stature as adults, and some children will be accompanied by psychological and behavioral abnormalities. It will also increase the incidence of neurovascular diseases, breast tumors, and obesity, affecting their normal life and work [3]. On the other hand, Western medicine There is a lack of uniform standards for treatment, with large side effects and high costs [4], causing trouble for many families. Therefore, the prevention and control of precocious puberty is very important, the core is prevention, and both prevention and control are emphasized.

## **1. Theoretical Origin of the Treatment of Pre-Disease**

The theory of curing disease in traditional Chinese medicine in my country pioneered the idea of prevention. This theory originated from the Yellow Emperor's Classic of Internal Medicine, which laid a solid foundation for later generations' prevention thinking, including prevention before

disease, prevention of degeneration after disease, and prevention of relapse after recovery. The "Nei Jing" mentions: "The sage does not cure his own disease and cures the disease, and if he does not cure his disorder, he cures the disorder. This is called. After the disease has been cured, he will treat it. When the disorder is cured, he will cure it. It's not too late to cast a cone." It means that the sage's skill in curing diseases is to gain insight into the progress of the disease before it occurs, and to intervene preventively. "Su Wen: Yin and Yang Yingxiang Great Theory" states: "The arrival of evil winds is as fast as wind and rain. Therefore, those who are good at governing the skin and hair, secondly the skin, secondly the tendons, secondly the six fu-organs, secondly, the five viscera, and those who treat the five viscera are half-dead and half-life. "I" means that if a disease has already occurred, those who are good at treating it should carefully observe the direction of its development and intervene as soon as possible to prevent it from spreading. "Su Wen. Theory of Heat" "Di Ri: What should be banned for sickness and heat? Qi Bo said: If you eat meat with less gold, you will recover, and if you eat too much, it will be left behind. This is forbidden." The factors of recurrence should be managed well after recovery[5]. To sum up, the theory of treating pre-disease was put forward in Neijing, which is very mature after continuous inheritance and development by later generations of physicians, and provides ideas and directions for contemporary disease prevention [6].

The theory of treating the disease before the disease is combined with sequential therapy to prevent and treat precocious puberty. The first treatment of the disease before the disease mainly refers to the targeted treatment in three stages, that is, to prevent its occurrence before it occurs, to actively treat it in the early stage of the disease, and to cooperate with TCM syndrome differentiation and treatment to prevent its further development. For fully developed children with precocious puberty, reasonable psychological counseling should be carried out. Two sequential therapy means that the treatment of precocious puberty should continue from the onset until the age of normal puberty, and the course of treatment lasts for several months to several years. Specifically, it should nourish yin and reduce fire in the onset period, nourish essence and fill marrow in the normal development period, and help Tiangui secrete in an orderly manner in the later stage. Sequential therapy can better help children with precocious puberty to better complete their puberty development.

## **2. Precocious Puberty is Closely Related to the Kidney, Liver and Spleen[7]**

There is no name for precocious puberty in traditional Chinese medicine, and the understanding of sexual development is based on Tiangui, which is believed to be both male and female, and when Tiangui arrives, sexual development matures. The first word of Tiangui is found in "Su Wen·Ancient Innocent Theory": "On the second seven, the Tiangui arrives, the Ren pulse is open, the Taichong pulse is prosperous, and the menstrual period is in the present, so there is a son... On the 28th, the kidney qi is prosperous, and the Tiangui arrives. , Essence overflows and bleeds, yin and yang are in harmony, so it is possible to have children." According to the research of modern doctors, Tiangui is a kind of subtle substance that can regulate the growth, development and reproduction of the human body, and has a time limit and regularity[8]. In Liu Wansu's "Su Questions on Pathogenesis, Qi and Proper Life, Theory of Women's Pregnancy and Childbirth", he said: "Women, children, young, and Tiangui are all Shaoyin; It belongs to the Taiyin meridian." The rise and fall of Tiangui is closely related to the kidney, liver and spleen [9]. The production of Tiangui is nourished by the previous generation and is also closely related to the function of the liver[10].

Tiangui and renal physiological functions are similar and interoperable. Both are in charge of growth, development and reproduction. Tiangui is nourished by kidney essence, and Tiangui is the

material basis for the functioning of kidney qi. Kidney governs sting and guards the position. The main sting means that the kidney seals and stores the essence of the kidney. Guarding the position means that the kidney yin and the kidney yang are contained in the kidney. Kidney essence is the innate essence from the parents and the acquired essence from the food after being transported and transformed by the spleen, and they support each other day after day. If the yin and yang of the kidneys are coordinated, the growth and development will be normal and orderly. As life is prosperous, the child's innate essence is enriched in the mother's womb. After birth, various supplements and nutrients are ingested, and the acquired essence is enriched, the essence and qi in the kidney will be full [11], which is easy to cause Tianguai overflowing and diarrhea. And the kidney meridian runs through the breast and the blood is strong, then the breast develops. In children, the kidney yin is insufficient, the yin deficiency forces the deficiency and the yang out, and the yin and yang in the kidney are out of balance, and the phase fire is abnormal, and the sexual symptoms appear early.

Women are born with the liver. The liver stores blood and controls hair growth. Chongren is subordinate to the liver and communicates with the uterus. Therefore, the growth and maturity are closely related to the liver. The liver is in charge of dredging and the kidney is in charge of closing and storing, and it promotes the growth and development of children. For example, Zhang Jiebin mentioned in "The Causes of Meridians and Vessels in Jingyue's Complete Book": "The kidney is the yin in the yin, the kidney is in the yin, and the liver is in the yin. The yang, the liver governs dredging and venting, and the two viscera have the mutual fire." If the kidney yin is sufficient, and the mutual fire is nourished, the relative fire will be hidden and not arrogant. In Rebellious children, the liver often has excess and is easily affected by emotions and liver qi is stagnant[12]. If the stagnation changes for a long time, the fire damages the yin, and the fire damages the Chongren. The lower abdomen is scattered in the chest and flank, the liver fails to disperse, and the qi and blood are not smooth, so it is seen that breast tenderness or early onset of breast nucleus.

The spleen controls the transportation and transformation, is the source of the biochemical qi and blood, and the pivot of the ascending and descending of the qi machine. Huang Yuanyu's "one qi circulating around, the four elements of the earth pivot" further shows that the spleen and stomach play an important role in human growth and development[13]. In children, the spleen is often deficient, and the diet is not controlled, the spleen and stomach are easily injured, and the water and qi movement and transformation are abnormal. If the transport and transformation are abnormal, if it is phlegm-dampness, the upper layer can condense with milk to form a milk nucleus, and when the bet is placed, leucorrhea will appear, and if it is accumulated for a long time, it will hurt the Chong-Ren. If the essence does not descend with the stomach, and the kidney yin is deficient, the phase fire will move rashly, and the sexual symptoms will appear early.

The understanding of sexual maturity in traditional Chinese medicine is based on Tianguai, which is closely related to the liver, spleen and kidney, and is closely related to the development of children's sexual characteristics in terms of the physiological functions of the liver, spleen and kidney. In the process of growth and development of children, if the functions of liver, spleen and kidney are out of balance, it is easy to lead to the imbalance of yin and yang of the body, and pathological changes such as yin deficiency and fire, liver stagnation and fire or spleen deficiency and dampness are likely to cause precocious puberty[14-15].

### 3. Prevention and Treatment of Precocious Puberty Based on the Theory of Disease Prevention

#### 3.1 When not Sick-Comprehensively Popularize Knowledge of Precocious Puberty, and Enhance Parents' Attention and Cognitive Awareness

The development and maintenance of the human reproductive system are controlled by the hypothalamic-pituitary-gonadal axis (HPGA). Namely, follicle stimulating hormone (FSH) and luteinizing hormone (LH), promote ovarian and testis development and secrete estradiol and testosterone. According to this, precocious puberty is divided into: true precocious puberty (CPP) (GnRH-dependent, central), that is, gonadal development, fertility, accelerated growth, early bone age, and lifelong height is affected. There are idiopathic precocious puberty with no abnormal clinical examination, and secondary precocious puberty with premature activation and hyperfunction of the hypothalamic-pituitary-gonadal axis (HPGA) function caused by disease; pseudoprecocious puberty (PPP) (GnRH-independent, peripheral) i.e. gonads are not developed and are sterile. This type is caused by the presence of a large amount of sex hormones in the blood caused by various diseases or the intake of exogenous hormones, which produces negative feedback inhibition on the hypothalamus-pituitary gland, and the HPGA axis is not activated, that is, according to the level and duration of sex hormones, there is a corresponding acceleration in growth. Lifetime height has a corresponding impact; Partial PP (variant puberty): Partial sexual characteristics appear, but no gonad development, no growth acceleration, lifelong height is not affected. The etiology of precocious puberty is complex, and diseases, dietary factors, family relationships, and lifestyles all affect it. Before the disease, the resources of the current information age should be used to conduct scientific popularization, and parents should be more vigilant and pay attention to it. Disease factors [16]: The hypothalamus is less sensitive to the negative feedback of sex hormones due to various reasons, the secretion of gonadotropin-releasing hormone is premature, and the secretion is increased. Girls show breast and ovarian development, and boys show testicular development. Some children showed tumors when they visited the doctor due to the development of secondary sexual characteristics. Dietary factors: With the economic development, the living standards of Chinese residents have been greatly improved. Frequent consumption of various high-calorie foods such as western fast food, high-sugar desserts, and various soup supplements, etc., brings the most direct problem caused by excess nutrition. Fat accumulation [17]. Man Lina [18] and other studies have shown that girls with precocious puberty have higher body fat rates. Fat accumulation produces leptin, which transmits metabolic signals in the hypothalamic-pituitary-gonadal axis and causes the hypothalamic-pituitary-gonadal axis to activate in advance. Relevant foreign studies also show that high-fat diet can lead to early puberty [19-20]. At present, an analysis of the nutritional status and obesity rate of children in urban areas in my country found that the overweight rate of urban children was 8.1%, and the prevalence of obesity was as high as 3.4% [21]. Greatly increases the risk of childhood precocious puberty. Family environment: The relationship between parents is not harmonious, the number of quarrels in the family is high, and the number of communication with children is low. Children who are in a depressed environment for a long time can easily lead to endocrine disorders and increase the risk of precocious puberty in children [22]. The low educational level of the parents and the early age of the mother's menarche are high-risk factors for the occurrence of precocious puberty in children[23-24]. Lifestyle: In recent years, electronic products have become widely popular and are used everywhere in life. Children's exposure to electronic products has increased significantly. Relevant studies have shown that long-term exposure to electronic products or sleeping with lights on will affect the secretion of melatonin and induce precocious puberty in children[25]; At present, a variety of off-season fruits

and vegetables are flooding into the market, and various daily necessities, such as laundry detergents, shampoos and other industrial technologies have brought convenience to the application of polymer compounds, but also produced many Side effects, such as phthalates (DEHP, DBP, DAP, etc.), and environmental endocrine disruptors represented by detergent degradation products (4-OP) and BPA, can affect endocrine changes in children and thus affect estrogen in the body. Hormone levels induce early puberty [26]. Both doctors and patients should pay attention to precocious puberty. First of all, avoid all kinds of inducing factors, actively clarify the cause and diagnosis when symptoms appear in early stage children, and pay attention to the mental health of children.

### **3.2 Early Treatment of Pre-Existing Diseases-for the Syndrome, Nourishing the Kidney, Clearing the Liver and Strengthening the Spleen, and Treating It Sequentially to Restore its Sequence**

Traditional Chinese medicine believes that the pathogenesis of precocious puberty is mainly due to the deficiency of kidney yin, and the relative fire is relatively prosperous, and because the liver often has excess in children, it can also be combined with liver stagnation and fire. Therefore, Zhibai Dihuang Pill, which nourishes yin and reduces fire, is the main formula [27]. Studies have shown that nourishing yin and reducing fire can reduce the secretion of LH and FSH [28], and down-regulate the expression of GnRH-R genes in the hypothalamus and pituitary [29]. The specific treatment is based on syndrome differentiation. For the deficiency of kidney yin and the excessive fire of yin deficiency and excessive fire, the treatment is to nourish yin and invigorate the kidney and clear the fire, and then use Zhibai Dihuang Pill. For red constipation with liver stagnation and fire syndrome, supplemented with soothing liver and relieving stagnation, clearing liver and purging fire, Zhibai Dihuang Pill and Danzhi Xiaoyao Powder are used in the prescription; for stagnant phlegm-dampness, supplemented with invigorating spleen and removing dampness and resolving phlegm To dispel the knot, add Zhibai Dihuang Wan and Erchen Decoction.

Sequential treatment of traditional Chinese medicine: nourishing yin and reducing fire at the onset of the disease, inducing its remission, and consolidating and maintaining the curative effect after the symptoms are relieved. Medicinal raw land, roasted turtle shell, Phellodendron rhizoma, Anemarrhena, etc. [30]; when the child reaches the age of normal puberty development, Yishen filling essence is used instead to promote better puberty development. Ling spleen, antler gum, etc.; in the later stage, traditional Chinese medicines that adjust the menstrual cycle can also be used in accordance with the yin and yang of the menstrual cycle, to promote the maturity of the positive feedback mechanism of the hypothalamus-pituitary-ovarian axis, and to establish a regular menstrual cycle quickly.

## **4. Discussion**

The incidence of precocious puberty is increasing year by year. Western medicine treatment has serious side effects and high costs. The western medicine treatment program GnRHa is mainly to induce remission, which can only inhibit the function of the hypothalamic-pituitary-gonadal axis. Traditional Chinese medicine, on the other hand, is based on the concept of the whole, combined with the sequential therapy of traditional Chinese medicine under the guidance of the theory of pre-disease treatment, and the combination of disease differentiation and syndrome differentiation. Increase publicity and pay more attention when the disease is not afflicted; when the disease occurs, it can be combined with individual conditions for treatment, especially the sequential program of nourishing yin and reducing fire and invigorating the kidney and filling essence can effectively

adjust the process of children's puberty development, and biphasically regulate the hypothalamus. - Function of the pituitary-gonadal axis.

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