

Research on return visit and investigation of the relapse rate of children allergic purpura after treatment

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Abstract: This paper aimed to research on return visit and investigation of the relapse rate of children allergic purpura after treatment. Children with allergic purpura were divided into two groups. The treatment group was treated with the adrenocorticotrophic hormone while the control group did not. We tracked and observed two groups of discharged children in the first month and the second month. It can be found that, at the first month, 5 cases recurred in the treatment group with 20 cases, the relapse rate was 25%, 1 case recurred in control group, the relapse rate was 5%; at the second month, 2 cases recurred in treatment group, the relapse rate was 10%, no case recurred in the control group. There were 8 cases recurred in the past two months, and there were no relapse after the second time treatment. In contrast, the children, who treated with adrenocorticotrophic hormone, had higher relapse rate, while the control group had lower relapse rate. Then we can get the conclusion that, the application of adrenocorticotrophic hormone may be one of the main reasons to induce the allergic purpura and we should notice and discuss this conclusion in the clinical practice.

Keywords: Children; allergic purpura; treatment; relapse rate.

INTRODUCTION

Allergic purpura, a kind of capillary inflammation with extensiveness and necrotizing, is caused by the increasing of capillary wall permeability. 2/3 of patients with allergic purpura have the recurrent tendency. The recurrent tendency will not only aggravate the patient's condition, may also lead to the new pathological changes, then the clinical classification changes from minor to heavy. Grape epidemic and purpura all belong to the medical category.

In paper from Zhu Xiaoshi *et al*, it made a comparison of urine micro protein changes between treating children with HSP with prednisone and those without such treatment. Then it found that urine micro protein detection could effect the damage to the kidney in children within HSP in a comprehensive, early and sensitive way. In study from Xia Jimei, it made a comparison of efficacy between those children with HSP who were treated with prednisone and those without such treatment and then followed to observe the relapse of their disease the first and second month after treatment. Her study showed that the children with HSP receiving prednisone enjoyed a high rate of relapse, while the control group enjoyed a low rate of relapse, which gave the hint that the application of prednisone might induce the relapse of HSP. Besides, in paper from Liu Kaiyun, it studied the side and toxic effects of applying the glucocorticoids in treating children with HSP. By observing the index changes of relative side and toxic effects before and after treatment with glucocorticoids from the perspective of BMI value,

blood, kidney function, and heart. His paper found HCSS and MP, these two glucocorticoids, can induce a high white blood cell in children, a quicker heart rate and an abnormal ECG but a less grave injury.

Based on the above-mentioned studies, this paper made a contrast between applying prednisone for treatment and those without and then followed to observe the rate of relapse so as to provide some reference for treating children with HSP to some extent.

MATERIALS AND METHODS

Materials

Children allergic purpura always occurs in more than 3 years old children, mostly occurs in school-age children. Male is more likely to suffer from allergic purpura than female, with roughly 2 times. In this disease, capillary inflammation is the main lesions. This disease influences the skin firstly, then influences the gastrointestinal tract, joints and kidney. The illness is acute, the symptom is changeable. Therefore, we selected 40 cases of children allergic purpura in our hospital, and they all first occurred. Among them, there were 14 cases of skin types, 4 cases of joint types, 2 cases of kidney types, 10 cases of abdomen type, and 10 cases of mixed types. There were 20 cases in treatment group, including 12 males and 8 females, the age was from 3 to 14, and the mean age was 9.5; there were 20 cases in control group, including 13 males and 7 females, the age was from 3 to 14 and the mean age was 9.5. Through the comparison between the gender and age

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in two groups, we could find that there was no statistical significance. Forty cases of allergic purpura patients all accorded with allergic purpura diagnostic criteria, which established by the American College of Rheumatology (Xiaozheng and Xiaochun, 2010). Before receiving the experiment, we all have acquired the consensus of patients and relatives, and also have signed an Informed Consent. Besides, this therapy scheme has been approved by Medical Ethic Committee.

Methods

The selected 20 patients included abdomen type, kidney type, joint type and mixed type. The patients were treated with adrenocorticotrophic hormone, prednisone 1-2mg (kg·d) based on the treatment program in Pediatrics. The patients needed to take the medicine through the mouth repeatedly or inject with dexamethasone, the dose reduced gradually until drug withdrawal increased the high-dose of VitC 200mg/(kg·d). In order to increase the density of vessels, we needed to inject the diphenhydramine in the muscle. For the children allergic purpura of abdomen type, we needed to add the ranitidine to inhibit the secretion of histamin and gastric acid, add the 654-2 to relieve the gastrointestinal smooth muscle spasm, take the montmorillonite powder orally to protect the gastrointestinal mucosa. The total treatment course was about 6-12 days, the average treatment course was 9 days. The control group was not treated by the adrenocorticotrophic hormone, the rest treatment method was the same with the above method. The treatment course was about 3-5 days, the average treatment course was 4 days. The two groups of patients allowed to discharge from the hospital until they recovered, and we needed to warn the patients, such as they had to away from the allergen, they cannot eat the high-protein foods, they needed to go to the hospital for return visit every two months; we needed to track the unvisited patients through the telephone in the end of the month, in order to get the relapse rate. For the recurrent patients, we cannot treat them with corticosteroids, when their conditions improved, then the anthelmintic treatment was used until they recovered.

STATISTICAL ANALYSIS

According to the information, we can analyze the data. There was no statistical significance in the gender and ages of two groups. The treatment group treated the patients with the adrenocorticotrophic hormone, this group had long treatment course and high relapse rate; the control group was not treated by the hormone, this group had short treatment course and low relapse rate. Therefore, there were statistical significance in treatment course, treatment efficacy and relapse rate of these two groups ($P>0.05$).

Pain, kidney symptoms between the treatment group and control group, the differences has the statistical

significance. At the first month, 5 cases recurred in the treatment group with 20 cases, the relapse rate was 25%, 1 case recurred in control group, the relapse rate was 5%; at the second month, 2 cases recurred in treatment group, the relapse rate was 10%, no case recurred in the control group. There were 8 cases recurred in the past two months, and there were no relapse after the second times treatment. The relapse conditions are shown in the following table.

Groups	N	Relapse case	Relapse rate
Control group	20	3	15%
Treatment group	20	5	25%

DISCUSSION

The reason of children allergic purpura is not very clear, the relevant factors are food allergies, medicine, microorganisms, vaccination and malignant lesions, etc.. The organism has the inappropriate immune response on the above factors, then the immune complexes form, which will cause the capillary inflammation, and even cause the necrotic small arthritis. Thus, the permeability of blood vessel wall will greatly increase the hemorrhage and edema of skin, mucous membranes and internal organs. The pathogenesis of allergic purpura is type β immune response. According to the report, the humoral immune disorders exists in the acute phase of allergic purpura, mainly manifesting as the IgE deposit on the skin small blood vessel, and the increasing of serum IgE. The research shows that, immune dysfunction exists in the children allergic purpura, mainly manifesting as low cellular immune function, the activation of polyclonal B cells, increasing of secretory of immunoglobulin, decreasing of CD3+, CD4+, NK cellular lever in the acute level, there is an imbalance in the IgM and =IgG subtype.

Children allergic purpura is more likely to appear in the clinical practice, and has no direct relationship with the age of the patients. This kind of disease may appear between 3-14 years old, and will injure the body organs and limbs of the patients; it will also affect the patient's health. The recurrent condition of allergic purpura is another problem; the recurrent condition will lead to the further damage. Allergic purpura is systemic vasculitis caused by the effect of mechanism on the allergic substance, mainly appears in the children, including 70% of children below 10 years old (Wei *et al.*, 2010). Among them, most patients are males; the high disease incidence appears in spring. The main pathological changes manifest as aseptic vasculitis, fiber necrosis of the vessel wall, the deposition of immune complex leads to the poor flow, the gastrointestinal mucosa in the hypoxic and ischemic state; it may cause the inflammatory exudation or bleeding. Clinical manifestation shows that skin petechiae, joint pain, abdominal symptoms and kidney damage. There are many reports about the pathogenesis,

but the report shows that, the increasing of peripheral blood lymphocytes activation, the delayed apoptosis, it may cause the pathogenesis of allergic purpura (Bin and Lida, 2009). There are 2/3 of children with digestive tract symptoms, such as abdominal pain appears before the symptom in the skin, then the patients believes it is the acute abdomen, may even treat with the operation (Xiuqin, 2009). According to the report, 55%-78% of allergic purpura appears the gastrointestinal symptoms (Ping and Huasong, 2010). 15%-45% gastrointestinal symptoms appear earlier than the appearance of rash (Brook *et al.*, 2010), may appear 1-36 days earlier than the purpura (Brook, 2002), it may also cause the abdominal pain and gastrointestinal bleeding, and even threaten life. The pathological changes manifest as hemorrhage and edema, especially in mucosa, even causes the mucosal ulceration. The mucosal lesions may precede the appearance of skin purpura. And the gastrointestinal lesions are not only the stomach and duodenum; the intestine may also be damaged, and then will lead to severe abdominal pain and hematochezia, etc. According to the report, there were 20 cases of mucosa appear later than the abdominal pain among 72 cases of gastrointestinal allergic purpura (Eijgenraam *et al.*, 2008). There were many reports about the allergic purpura, but it was still difficult to determine the recurrent reason. The effect was not effective by using high-dose of Globulin to treat the gastrointestinal allergic purpura. And the high-dose of hormones and other comprehensive treatments are effective, but if the hormone reduces faster, the abdominal pain immediately repeats (Simon *et al.*, 2001). Due to the large proportion, this kind of method can be widely used. Through the treatment and observation for two years, the two groups were compared with each other, the treatment group treated the patients with the adrenocorticotrophic hormone, this group had long treatment course and high relapse rate; the control group was not treated by the hormone, this group had short treatment course and low relapse rate. Therefore, there were statistical significance in treatment course, treatment efficacy and relapse rate of these two groups. Allergic purpura belongs to the allergic disease. When the immune system loses the balance, the allergic inflammatory is the main reason of causing the allergic disease. The genetic and environmental factors all determine the incidence of allergic diseases. The atopic mechanism produces the specific IgE under the effect of allergen, that is, the certain allergens (Miaoxin, 2010). In short, we need to do more observations and draw more conclusions in the clinical practice, and have the long-term understanding on the recurrent allergic purpura. We need to conclude more effective prevention and control measures, so as to reduce the complication and reduce the economic burden of parents.

In order to better prevent the recurrent of children allergic purpura, we should pay more attention to the following aspects in our daily life:

The appropriate anti-allergy treatment should be applied in the recurrent time. The outbreak and relapse of the allergic purpura is obvious seasonal, mainly occurring in the annual September to December, of course, some children get the disease in spring or summer. According to such a law, parents can use some anti-allergy medicine based on the recurrent law in the peak time, such as loratadine, cetirizine and so on. In the clinical practice, we find the reducing of the purpura under the prevention.

We need to control diet. The outbreak of allergic purpura may cause by the special foods, such as eggs, milk, snacks, fish and shrimp, etc. most of allergic children belong to the hot body. Therefore, if the children are suffering from the allergic purpura, we need to control the diet strictly; the children cannot eat the heated food. In the acute phrase, the patients can only eat the vegetables, and cannot eat the mushroom, fungus, potatoes, tomatoes, etc. When the condition becomes stable, then the patients can gradually eat lean meat, eggs, milk, mushrooms, but it must be added gradually. For the problem of mutton, chili and seafood, the patients cannot eat in a period of time. The period should be determined by the patient physique. These substances are dangerous to allergic purpura, because it may cause the relapse of the disease.

We are not recommended to inject the vaccine. Vaccination is a good method to prevent the disease, but for the children with allergic purpura, they'd better not inject the vaccine. Because parts of the patients get the disease after vaccination, we can also find the recurrent situation after the vaccination. According to parts of books, they'd better not to inject the vaccine within half a year or one year.

We need to control the infection. The outbreak of allergic purpura connects with diet and daily necessities, infection is another factor to arouse the purpura, therefore, it is important for the patients to strength their physical fitness. If they are infected, they need to get the treatment rapidly. If they catch the cold, they can use the immunomodulators. But the patients need to remember that they cannot use too many immunomodulators. In the clinical practice, parts of immunomodulators may lead to the repeated purpura.

CONCLUSION

In short, the application of prednisone can be one of the major causes for the relapse of HSP which need more attention and discussion in clinic. All in all, we should make more observations and conclusion in clinic. A long-term understanding of those recurrent HSP is required so that more effective measures of precaution can be concluded and reduce the incidence of complication. Moreover, it can effectively relieve the long-term pain for those children and ease the financial burdens on their families.

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