

Efficacy Analysis of Glucocorticoids in the Treatment of Allergic Purpura in Tibetan Children

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Abstract

Background: Henoch Schonlein Purpura (HSP) is a common immune-related allergic disease in children. It is very important to understand the clinical features of this disease for doctors. **Objective:** To explore the clinical efficacy of glucocorticoids in the treatment of HSP in Tibetan children at high altitude, and to analyze the possible causes of HSP in children at high altitude. The risk factors of the disease provide a reference for the treatment of HSP in children in high altitude areas. **Methods:** Selecting January 2015 to November 2020, 88 children diagnosed with Henoch-Schonlein Purpura in the outpatient and inpatient departments of the People's Hospital of Bomi County, Tibet Autonomous Region were the subjects of the study. Its gender, age of onset, season of onset, predisposing factors, allergy history, first symptoms, clinical manifestations, laboratory examinations, etc., perform retrospective analysis. **Results:** Among 88 children with allergic purpura, 55 were boys, accounting for 62.5%, and 33 were girls, accounting for 37.5%. Men have more cases than women. All have clinical manifestations of purpura of the skin, among which 35 cases have obvious triggers, of which the above there were 26 cases of respiratory infections, 6 cases of dietary factors, and 3 cases of contact with allergic substances. Simple skin type: 18 cases, accounting for 20.45%; Abdominal type: 6 cases, accounting for 6.82%; 2 male cases, accounting for 33.33%; 4 female cases, accounting for 66.67%; Articular type: 8 cases, accounting for 33.33%; Renal type: 2 cases, accounting for 2.27%; 54 cases of mixed type, accounting for 61.36%. After glucocorticoids, the rashes disappeared, no any adverse reactions. **Conclusion:** Allergic purpura in children

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is more common in school-age children, and upper respiratory tract infection is the main predisposing factor. Skin purpura is the main clinical manifestation, often associated with lower extremity joint swelling and pain. There is no significant difference in the efficacy and course of the disease between intravenous and oral treatment. Therefore, clinicians should strictly grasp the indications of glucocorticoids to reduce the occurrence of complications.

Keywords

Plateau, Tibetan, Children, Glucocorticoids, Allergic Purpura

1. Introduction

HSP is a systemic vasculitic disease which is common in children, and one of the systemic vasculitis, mainly with capillary vasculitis as the main pathological change, and its pathological change is extensive aseptic capillitis. It is accompanied by edema and congestion [1] [2]. The non-thrombocytopenic purpura, arthritis or joint pain, abdominal pain, gastrointestinal bleeding and nephritis are the main clinical manifestations. The common age of onset is 7 - 14 years old, and it is rare in infants under 1 year-old [3] [4]. Its etiology and pathogenesis are complex. The mechanism is not clear, and the incidence of the disease has been increasing year by year in recent years. At present, the clinical treatment methods are still mainly anti-allergic and symptomatic treatment. But severe cases are often accompanied by gastrointestinal tract, and kidneys injuries and other organ injuries [5] [6]. It requires clinicians to adopt appropriate diagnosis and treatment plans in time. Current research mostly focuses on plains. The treatment plan and clinical characteristics of children with HSP are the main ones. There is still a lack of relevant data on the treatment of HSP in children with high altitude Tibetans, and there is insufficient reference for clinical diagnosis and treatment. This study focuses on retrospective analysis of the 88 cases of HSP children treated in the Department of Pediatrics of the People's Hospital of Bomi County, Tibet Autonomous Region from January 2015 to November 2020, and provides recommendations for the treatment of HSP in the plateau area.

2. Clinical Data and Methods

2.1. Inclusion Criteria [7]

1) Age 1 - 16 years old, native Tibetan children of plateau; 2) Meet the diagnostic criteria of HSP; 3) Do not combine with other types of purpura (such as blood Small plate reduced purpura) and other blood system diseases (such as leukemia); 4) The clinical data is perfect.

2.2. Exclusion Criteria [7]

1) Congenital dysplasia, hepatosplenomegaly, systemic lupus erythematosus; 2) Recent severe systemic infection, primary kidney disease, such as kidney Glomerulonephritis; 3) Recently took glucocorticoids or other immunosuppressive agents.

2.3. Treatment Methods

All 88 children with Henoch-Schonlein purpura were treated with glucocorticoids, antihistamines, vitamin C and calcium, and their condition improved. Children were given oral or intravenously injected with dexamethasone (Huanan Pharmaceutical Group Co., Ltd., Guangdong, China, State Drug Approval Document Number: H44024469) at 0.25 mg/(kg·d). The drug was gradually reduced to stop.

2.4. Efficacy Criteria

Healed: Skin purpura subsides, and other symptoms disappear; Significant effect: Most skin purpura subsides, and symptoms are significantly reduced; Effective: Skin purpura partially subsides, and the symptoms have improved; ineffective: skin purpura recurs, and other symptoms aggravate.

2.5. Statistical Processing

Application SPSS 25.0 software for processing. Counting data is expressed as a percentage, measurement data is expressed as $\bar{x} \pm s$, $P < 0.05$ is statistically significant.

3. Results

3.1. General Situation

Among 88 cases of Henoch-Schonlein Purpura, 55 were boys, accounting for 62.5%, and girls: 33, accounting for 37.5%. Men had more cases than women. The results are shown in **Table 1**. The age of onset is 1 to 16 years old, with 1 infant, accounting for 1.14%; 22 cases from 5 to 7 years old, accounting for 25%; 44 cases were 8 to 12 years old, accounting for 50%; 21 cases were 13 to 16 years old, accounting for 23.86%. The results are shown in **Table 2**.

3.2. Clinical Feature

Among the 88 children with Henoch-Schonlein purpura, the simple skin type: 18 cases, accounting for 20.45%, including 15 males, accounting for 83.33%, females 3 cases, accounting for 16.67%; abdominal type: 6 cases, accounting for 6.82%, 2 male cases, accounting for 33.33%, 4 female cases, accounting for 66.67%; 8 cases of articular type, accounting for 9.1%, of which 4 were male, accounting for 50%, and 4 were female, accounting for 50%; renal type: 2 cases, accounting for 2.27%, and There are 2 males, accounting for 100%, 0 females,

accounting for 0%; 54 mixed cases, accounting for 61.36%, of which 32 are males, accounting for 59.26%, 22 cases were female, accounting for 40.74%. The results are shown in **Table 3**.

3.3. Performance of Skin Damage

All 88 children with allergic purpura had clinical manifestations of skin purpura, among which 35 cases had obvious triggers, among which the upper respiratory tract infection. There were 26 cases of infection, 6 cases of dietary factors, and 3 cases of contact with allergic substances. From the point of view of the distribution of purpura, most of them involve double under. The limbs are distributed symmetrically, followed by the hips and upper limbs. The back of hands, feet, trunk and face are rare. It may be accompanied by a sensation of itching. In severe cases, it may be accompanied by angioedema, purpura or hemorrhagic maculopapular rash of various sizes, different shapes, and pressure. The color does not fade, and sometimes it can be fused into a piece. The time for the rash to resolve varies depending on the condition of the disease, mostly ranging from 5d - 7 days (**Figure 1**).

3.4. Treatment Time

88 cases of children with Henoch-Schonlein purpura according to the course of the disease: 60 cases within 10 days of treatment, 26 cases within 10 - 15 days, and 2 cases were more than 15 days. For example, the results are shown in **Table 4**. Among them, 36 children were treated with intravenous glucocorticoids, 29 cases were treated for ≤ 10 days, and 10 - 15 days accounted for 5 cases, 2 cases were more than 15 days or more, the results are shown in **Table 5**. 52 children were treated with oral corticosteroids, and the treatment was less than 10 days, Among 31 cases, 10 - 15 days accounted for 21 cases, and ≥ 15 days 0 cases. The results are shown in **Table 6**.

Table 1. Sex of 88 cases of Henoch-Schonlein purpura.

Gender	Number of cases	Percentage (%)
Male	55	62.5
Femal	33	37.5

Table 2. Age of onset of 88 cases of Henoch Schonlein purpura.

Age	Number of cases	Percentage (%)
Infancy (<1 years old)	1	1.14
Preschool (5 - 7 years old)	22	25
School age (8 - 12 years old)	44	50
Puberty (13 - 16 years old)	21	23.86

Table 3. Treatment time of 88 cases of Henoch-Schonlein purpura.

Days	Number of cases	Percentage (%)
Simple skin type	18	20.45
Abdominal type	6	6.82
Articular type	8	9.1
Renal type	2	2.27
Mixed type	54	61.36

Table 4. 88 cases of allergic purpura treatment time.

Days	Number of cases	Percentage (%)
≤10 days	60	68.2
10 - 15 days	26	29.5
≥15 days	2	2.3

Table 5. 36 cases of intravenous glucocorticoid treatment time.

Days	Number of cases	Percentage (%)
≤10 days	29	80.6
10 - 15 days	5	13.9
≥15 days	2	5.5

Table 6. Treatment time of 52 cases of oral corticosteroids.

Days	Number of cases	Percentage (%)
≤10 days	31	59.6
10 - 15 days	21	40.4
≥15 days	0	0

**Figure 1.** After treatment, the child's rash subsided.

4. Discussion

In recent years, the prevalence of allergic purpura in children has been increasing. The pathogenesis is mainly immunological abnormalities and humoral immune abnormalities. It also involves cellular immunity with the participation of inflammatory cells, cytokines and inflammatory mediators. There are microvascular and interstitial in renal pathology damage. Non-thrombocytopenia and palpable skin purpura are necessary conditions for the diagnosis of HSP, and the rash is not the only phenotype in all children. Some children have joint pain or abdominal pain as the first symptoms, which can be as long as two weeks without rash [8]. Therefore, it is often easy to cause misdiagnosis. For example, when some children often have lower limbs or ankle joint swelling and pain as the first symptom, parents think it is caused by falls or sprains [9], or some children have purpura nephritis. When symptoms such as hypertensive encephalopathy will occur, if treatment is delayed [10] [11]; even when HSP abdominal type has not yet appeared skin purpura or has appeared but has not been detected, it is misdiagnosed as acute For acute abdomen such as appendicitis, laparotomy is performed. The symptoms of abdominal pain in children cannot be relieved or further aggravated, causing a series of complications and increasing the difficulty of follow-up treatment [12]. Therefore, clinicians must be vigilant for children with unexplained abdominal pain before the appearance of typical skin purpura, provide auxiliary examinations if necessary, and be cautious in laparotomy to avoid misdiagnosis that may increase the pain and damage the health of the child.

At present, there is no specific treatment plan for HSP, and comprehensive treatment is still the mainstay. Adrenal corticosteroids are added to those with severe gastrointestinal symptoms and joint swelling and pain, and those with nephropathy or rapidly progressive nephritis are treated with methylprednisolone shock treatment [13] [14]. For HSP treatment, it is necessary to strictly grasp the indications, to improve the clinical prognosis of children to the greatest extent, and to actively give immunosuppressive treatment and support symptomatic treatment [15]. In addition, the study also found that some children have kidney damage, and the degree of kidney damage is critical to the prognosis. The increase in urine microprotein excretion can be earlier than urine routine or urine protein quantitative examination, which is helpful for the early diagnosis of occult kidney damage [16] [17]. This study shows that among 88 allergic purpura cases, 55 are boys, accounting for 62.5%, and 33 are girls, accounting for 37.5% of men have more cases than women. The age of onset ranges from 1 to 17 years old. There is 1 case of infants and young children, accounting for 1.14%; 5 to 7 years old 22 cases were aged 8 to 12 years, accounting for 25%; 44 cases were 8 to 12 years old, accounting for 50%; 21 cases were 11 to 16 years old, accounting for 23.86%. Among them, the simple skin type: 18 cases, accounting for 20.45%, of which 15 cases are male, accounting for 83.33%, and 3 cases are female, accounting for 16.67%; Abdominal type: 6 cases, accounting for 6.82%, 2 male cases, accounting for 33.33%, 4 female cases, accounting for 66.67%; articular type 8 cases, accounting for 33.33%, including 4 males, ac-

counting for 50%, 4 females, accounting for 50%; kidney type: 2 cases, accounting for 2.27%, including 2 males, accounting for 100%, 0 females, accounting for 0%; 54 mixed cases, accounting for 61.36%, including 32 males, accounting for 59.26%, females 22 cases, accounting for 40.74%. All children have clinical manifestations of skin purpura, of which 35 cases have obvious triggers, of which the above. There were 26 cases of respiratory infections, 6 cases of dietary factors, and 3 cases of contact with allergic substances. From the distribution of purpura, it affects both lower extremities and is symmetrically distributed. Secondly, it can affect the buttocks and upper extremities. The back of hands, feet, trunk and face are less common. Sometimes purpura may also be accompanied by itching, in severe cases it may be accompanied by angioedema, purpura or hemorrhagic maculopapular rashes of various sizes and shapes. It is different and does not fade under pressure. Sometimes it can be fused into a piece. The time for the rash to subside varies with the treatment of the condition, mostly ranging from 5d - 7 days. Among them, 60 cases were treated within 10 days, 26 cases were treated for 10 - 15 days, and 2 cases were more than 15 days. Among them, 36 children were static. Glucocorticoid treatment, 29 cases were treated for ≤ 10 days, 5 cases were 10 - 15 days, 2 cases were ≥ 15 days, 52 cases were children with oral glucocorticoid therapy, 31 cases were treated within 10 days, and 21 cases were treated within 10 - 15 days, confirmed that there was no difference between intravenous and oral corticosteroids in the curative effect and course.

5. Conclusion

In summary, Henoch-Schonlein Purpura is a common and frequently-occurring disease in children, and can involve multiple systemic systems. Factors are related. The age of onset of allergic purpura in our region is mostly 8 - 12 years old, male > female; mixed purpura is common; simple skin is second; most of them have no cause for onset; there is no significant difference in curative effect and course of disease between intravenous and oral treatment, so clinicians should strictly grasp the indications of glucocorticoids to reduce the occurrence of complications. Due to the small number of observations and short time in this study, its overall long-term efficacy needs to be further confirmed in a multi-center, large sample, prospective clinical double-blind randomized controlled study.

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Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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