

Original Article

Effects analysis on the comprehensive nursing intervention for the children with spleen deficiency syndrome arising from use of antibacterial agents

Meiying Liu^{1*}, Yuying Yang^{2*}, Xiaohong Zhu³

¹Nursing Department of Yantai Traditional Chinese Medicine Hospital, Yantai 264013, China; ²Operating Room of Yantai Traditional Chinese Medicine Hospital, Yantai, China; ³Neck, Shoulder, Waist and Leg Pain Specialist of Yantai Traditional Chinese Medicine Hospital, Yantai 264013, China. *Co-first Authors.

Received May 8, 2019; Accepted June 10, 2019; Epub July 15, 2020; Published July 30, 2020

Abstract: Objective: The goal of this study was to explore the effects of comprehensive nursing intervention for children with spleen deficiency syndrome arising from use of antibacterial agents. Methods: A total of 120 pediatric patients with spleen deficiency syndrome arising from use of antibacterial agents in the past two years were selected in the hospital and randomly divided into a control group and an observation group, and each group included 60 patients. A group of 60 patients were selected as the control group for routine nursing, and another 60 patients were selected into an observation group for comprehensive nursing intervention. The nursing effects between both groups were compared. Results: After the comprehensive nursing intervention, a total of 53 pediatric patients in the observation group were improved, accounting for 88.33%, but only in the control group were improved, accounting for 66.67% only. According to data results, the therapeutic effects of the observation group were far superior to that in the control group, with the significant difference between both groups ($P < 0.05$). Conclusions: The comprehensive nursing intervention mode for children with spleen deficiency syndrome arising from use of antibacterial agents conformed to the treatment needs of patients, can effectively strengthen therapeutic benefit, significantly eliminate or improve the clinical symptoms, shorten treatment time, and aid recovery, thus improving their future quality of life and play a propelling role in clinical research.

Keywords: Comprehensive nursing intervention, antibacterial agents, children with spleen deficiency syndrome, effects

Introduction

The spleen deficiency syndrome is often caused by weak spleen qi in the body or long-term spleen deficiency which affects spleen yang and further incurs deficiency of spleen yang. Spleen deficiency syndrome is one of the most common syndromes in the pediatric clinical practice. However, children are vulnerable to some infectious diseases, and some of the most common drugs in modern pediatric clinical practice are antibacterial agents. It is much easier for the children with spleen deficiency syndrome to suffer from infectious diseases due to weak body, but the use of antibacterial agents incurs the occurrence and aggravation of spleen deficiency syndrome in children [1]. Therefore, high attention shall be paid to the children with spleen deficiency syndrome arising from use of antibacterial agents. In the

treatment process, in addition to the combination of the disease conditions of patients to provide them with systemic treatment, comprehensive nursing intervention shall also be taken to improve prognosis. Through the clinically comprehensive nursing intervention for the children with spleen deficiency syndrome arising from use of antibacterial agents who were treated in hospital in recent two years, this study has comprehensively analyzed the nursing method and discovered its obvious effects. The following reports are made in detail according to the aforesaid study.

Data and methods

General data

A total of 120 pediatric patients with spleen deficiency syndrome arising from use of anti-

Spleen deficiency syndrome nursing

bacterial agents in recent two years were selected as main observation subjects and all of them meet the therapeutic standards related to the children with spleen deficiency syndrome arising from use of antibacterial agents. There were 59 boys and 61 girls among the 120 children with the minimum age of 0 year old while the maximum age of 6 and with the average age of 3.06 ± 1.93 ; the shortest duration of disease was 1 year and the longest was 4 years with the average duration of 2.35 ± 1.27 . These 120 patients were randomly divided into an observation group and a control group, including 60 patients in the observation group for comprehensive nursing intervention mode, and another 60 patients in the control group for routine nursing mode. The parents of selected children knew well about the clinical therapeutic method, objective and relevant attentions. There was no obvious difference in general clinical data such as gender, age and duration of disease in both groups of patients ($P > 0.05$), thus with comparability.

Methods

Control group

We followed doctor's advice to provide: Daily medication guidance and health education were given following doctor's advice favorable to improve disease conditions, personal files were established, including their names, genders, ages, courses of disease, family statuses, discharge times and contact information, and they were properly follow-up by telephone after children discharged from the hospital once-three times each month basically so as to learn the medication conditions and disease control conditions.

Observation group

On the basis of the control group, comprehensive nursing intervention measures were taken based on their specific conditions, and special personnel were arranged to regularly assess effects, and specific nursing intervention measures are as follows.

Good communication with children and their parents: Because some children were too young to directly communicate with us, nurses were required to communicate more with their parents. Initially, nurses enthusiastically and actively treated the children and their parents,

introduced themselves, and led the children and their parents to make familiar with the environment of the hospital, and hold a caring and amiable attitude towards the children and care about and learn their needs so as to enable the children to be adapt to the strange environment as soon as possible and actively cooperate to be treated. In the process of nursing the children, nurses were patient and considerate and paid more attention to communication with the parents, which is favorable for good care.

Publicity and education concerning health education knowledge and daily attentions: The hospital organized knowledge lectures for the parents of the children to publicize and teach professional knowledge about the children arising from use of antibacterial agents and help them know the effect of use of antibacterial agents on spleen deficiency syndrome in children. Secondly, the hospital communicated with the parents of the children to learn children's course of disease and convey some prevention and control measures proposed for these children to their parents in the method of manual. Finally, the hospital popularized some knowledge among the parents including the therapeutic schemes for their children, type of routine clinical drugs as well as knowledge about how to properly use drugs. Additionally, the hospital also actively communicated with the families of the children and provided them with some routine nursing guidance so as to respond to emergencies of the children and daily simple nursing and thus enable the children to regain their health as soon as possible.

Mental health nursing of the children: Because children with spleen deficiency syndrome are weak physically for a long term and suffer from the disease, they are certainly in a flutter, are nervous and have other emotions. It is often said that, managing emotions, such as excessive joy, anger, sorrow, and happiness in daily life affect each organ of our body to some extent. It can be thus seen that psychological factors greatly effects on the occurrence and development of diseases. Children are too young to express and vent their feelings, but they still have negative moods from their inner heart such as unhappiness and fidget. They can bust out crying when unhappy, especially all night without sleep, which significantly affect therapeutic effects. Therefore, nurses

Spleen deficiency syndrome nursing

shall patiently pacify the emotions of the children and help the children temporarily forget pain through distracting their attention and other methods so as to make them maintain good emotions and actively cooperate with nurses to receive treatment, which would be very helpful for their follow-up recovery.

Diet nursing of the children: It is known that, in addition to the physical problems of the children themselves, the spleen deficiency of children is largely related to daily feeding of their parents [2]. Therefore, diet nursing of the children is of vital importance. The daily diet of the children is mainly bland, and it shall be ensured that they have more meals a day but fewer foods at each time. It is forbidden to feed raw, cold, greasy, cool, and smooth foods, and the children shall eat less fish and meat. Based on such analysis, doctors and nurses made reasonable diet plans according to the physique of the children [3]. For the children with endogenous cold, doctors and nurses helped them develop a habit of having hot drinks, and in order to avoid the destruction of acid base equilibrium of intestinal tract, they did not excessively feed yogurt products to the children but fed more yams, taros, pumpkins, pearl barley and other foods, and fed less or did not feed greasy, raw and cold foods. For children with endogenous heat, they fed dry, fried and spicy foods to them as few as possible, and controlled some fluid protein drinks such as drinking volume of milk. In addition, they fed more pumpkins, kelps and carrots and other foods to the children, and meanwhile they shall avoid feeding cold and cool foods.

Ward environment nursing: Ward environment has an important influence on body recovery of the children. Therefore, nurses timely ventilated and cleaned the wards where the children lived, and disinfected the wards every day so as to keep indoor air fresh. In addition, they detected the air in the wards, aseptic materials and disinfectants etc. monthly, and ensured that a patient had a medical instrument, and timely disinfected it. Furthermore, doctors and nurses were also required to disinfect their hands so as to protect the children from cross infection arising from ward environment, further common cold and other diseases, and thus affecting therapeutic effects [4]. Meanwhile, nurses endeavored to keep the wards quiet as far as possible to protect the children from getting

scared; nurses posted up some security warnings and warm prompts in the wards to ensure that the children and their parents can have reassuring and comfortable space.

Medication nursing: Due to weak spleen and stomach of the children, spleen and spleen yang was strengthened and promoted, and the stomach and neutralization was strengthened while treatment. Therefore, drugs were taken with warm water, strictly followed by nurses at the time of nursing. If the children vomited frequently after taking drugs, nurses could require them to take drugs more times but less dosage each time based on actual conditions, and carefully observe whether the children are in low spirits, are expressionless or develop convulsion after taking drugs. Once the aforesaid conditions occur, nurses shall immediately report to attending doctors to timely treat the symptoms.

Physical therapy nursing: All drugs have toxicity to some degree. Nurses relieved the disease conditions of the children by physical therapies including chiropractic therapy and acupuncture nursing therapy [5, 6] in the treatment process. The main operation methods of the chiropractic therapy are that middle fingers, ring fingers and little fingers of two hands shall be held into an empty fist, index fingers shall be half bent, thumbs shall be stretched, and the skin on the back of the children of about 0.5-1 cm shall be gently pinched and pushed from bottom to top, and the steps shall be repeated 1-2 times every day. Such therapy can bring less pain and be easy to be accepted by the children. In addition to the chiropractic therapy, nurses also implemented the acupuncture therapy based on the symptoms of the children, namely, they selected 2-3 acupuncture points at each time and took turns to select them once every day, and 10 times was a course of treatment, or they performed moxibustion [7] on Tianshu, Zhongwan and Zusanli acupuncture points, etc. Such therapy can not only reduce the medication for the children, but also mitigate their disease conditions and pain.

Evaluation index

The therapeutic effects of both groups of children after nursing intervention were compared. 1. Markedly effective: the improvement level of main symptoms of the children with spleen defi-

Spleen deficiency syndrome nursing

Table 1. Comparison of effects between both groups percentage (%)

Group	Number of patients	Markedly effective	Improved	Ineffective	Total effective rate
Observation group	60	35 (58.33)	18 (30.00)	7 (11.67)	53 (88.33)
Control group	60	25 (41.67)	15 (25.00)	20 (33.33)	40 (66.67)
Total	120	60 (50.00)	33 (27.50)	27 (22.50)	93 (77.50)

ciency reaches over grade II, or the improvement condition of individual symptoms reaches grade I level, but other main symptoms are completely improved. 2. Effective: the improvement level of main symptoms of the children with spleen deficiency reaches over grade I, or individual symptoms are not changed at all, but the improvement level of other main symptoms reaches over grade II. 3. Ineffective: the main symptoms of the children with spleen deficiency are not radically improved.

Data statistics

SPSS 17.0 software was used for statistical analysis, and χ^2 test was used for measurement data, and detection criteria of $\alpha = 0.05$ was set and $P < 0.05$ means a significant difference.

Results

Comparison of therapeutic effects of the children in both groups

The effects of the children in both groups were investigated by doctors and nurses after completion of treatment and the following information was obtained through the arrangement for data: 60 patients were in the observation group, the number of markedly effective, improved and ineffective cases were 35, 18 and 7 respectively, and total effective cases were 53; among 60 children in the control group, the number of markedly effective, improved and ineffective cases were 25, 15, and 20 respectively, and total effective cases were 40. Through the comparison between both groups, **Table 1** was obtained.

According to the data obtained in above **Table 1**, the data was analyzed in details according to the sum of ranks test method using SPSS 17.0 statistic software and the conclusion was obtained, which detailed operation steps were as follows.

Data input

Open the data edition window of SPSS 17.0 software, click the variable view to define the data and express the "group" of variable with

group (1 means observation group and 2 means control group), and express effect with outcome (1 means markedly effective, 2 means improved and 3 means ineffective), express frequency with f (see **Figure 1**); and then click data view to input data (see **Figure 2**).

Data analysis

First, select the "data" in the taskbar and select weight case (see **Figure 3**), and then select "weight case" button after entering "weight case" and select frequency f into the frequency variable (see **Figure 4**), and then click confirmation. After that, select the "analysis" in the taskbar and select 2 independent samples test in the non-parameter test (see **Figure 5**), and select test variable into "effect outcome" after entering "2 independent samples test", the group variable is "group" (see **Figure 6**), and define the minimum value of the scope of definition of group variable as "1" and define the maximum value of the scope of definition of group variable as "2" (see **Figure 7**), tick "Mann-Whitney U Test" after returning to the main dialog box and finally select "confirm" for analyzing.

Analysis results

Tables 2 and **3** were obtained after executing data analysis mentioned in 1.2.

Table 1 describes the ranks of both groups of data and obtained that the sample sizes of both groups were 60 respectively. The rank value of the observation group was 53.38, sum of ranks was 3202.50; the average rank of the control group was 67.63 and sum of ranks was 4057.50. **Table 2** shows the analysis result of the sum of ranks test and Mann-Whitney U was 1372.500, Wilcoxon W value was 3202.500, Z value is -2.444. Both sides P value was 0.015, and test standard is provided as $\alpha = 0.05$, therefore, when $P < 0.05$, the difference between both parties had statistical signifi-

Spleen deficiency syndrome nursing

	Name	Type	Width	Decimals	Label	Values	Missing	Columns	Align	Measu
1	group	Numeric	8	0	Group	{1, Observat...	None	8	Right	Scale
2	Outcome	Numeric	8	0	Effect	{1, Markedl...	None	8	Right	Scale
3	f	Numeric	8	0	Frequency	None	None	8	Right	Scale
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										

Figure 1. Definitions of three variables- group, outcome and f.

	group	Outcome	f	Var	Var	Var	Var	Var	Var	Var	Var	Var
1	1	1	35									
2	1	2	18									
3	1	3	7									
4	2	1	25									
5	2	2	15									
6	2	3	20									
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												
21												
22												
23												
24												
25												
26												
27												
28												
29												

Figure 2. Input of two groups of data.

cance. However, the average rank of observation group was 63.21, and the average rank of the control group was 77.79, so the average rank of observation is lower than that of the control group and effect of observation is more obvious than that of the control group.

Discussion

Spleen deficiency syndrome in children is one of the most common syndromes in the pediatric clinical practice, and such syndrome is resulted from not only congenital constant defi-

Spleen deficiency syndrome nursing

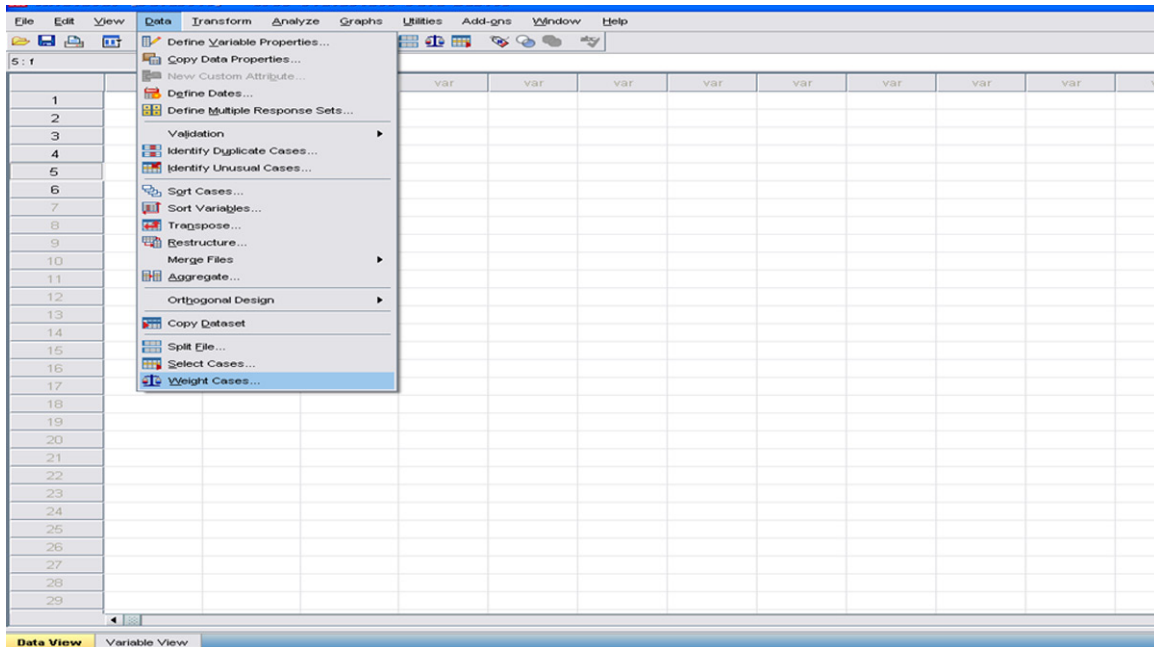


Figure 3. Selection of weight dialog box.

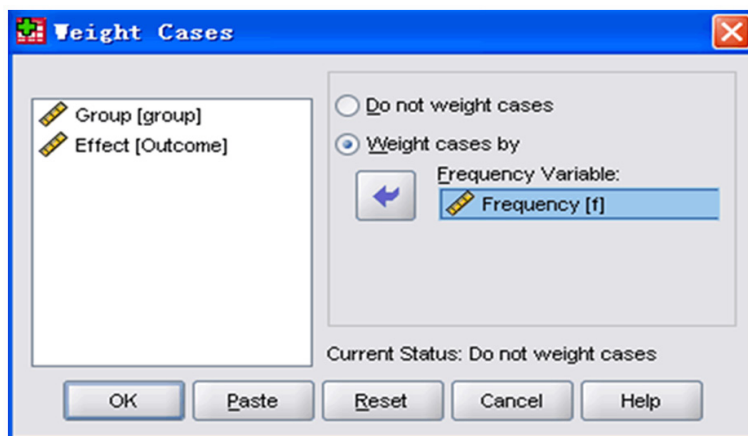


Figure 4. Selection of weight variable f.

ciency in spleen but also acquired factors such as improper feeding, being scared and unsuitable nursing. In addition, children are vulnerable to infectious diseases, and antibacterial agents, as the main drug for anti-infection, are one of the most common drugs in pediatric clinical practice at present. However, the overuse of these antibacterial agents incurs the occurrence and aggravation of spleen deficiency syndrome in children from different degrees [8]. Therefore, high attention shall be paid to the clinical use of antibacterial agents. Under the condition of ensuring the Effects of patients,

the antibacterial agents shall be used in a standard and reasonable way based on the symptoms of patients, but shall not be abused so as to avoid the occurrence of spleen deficiency syndrome in children arising from overuse of antibacterial agents to the utmost extent.

With the continuous development of modern society, medicine science has been gradually transformed from traditional biomedicine to the modern medicine science mode combined with biomedical-psychological-social medicine science [9]. According to the cognition of modern medicine science, medicine science is to not only ensure the life safety of patients and take diseases and treatment as central problems, but also improve the life quality of patients. Thus, when treating pediatric patients, a hospital shall gradually transform from only depending on drug treatment to a comprehensive treatment mode of mainly depending on drug treatment and providing psychological therapy. The comprehensive nursing intervention mode is exactly the emerg-

Spleen deficiency syndrome nursing

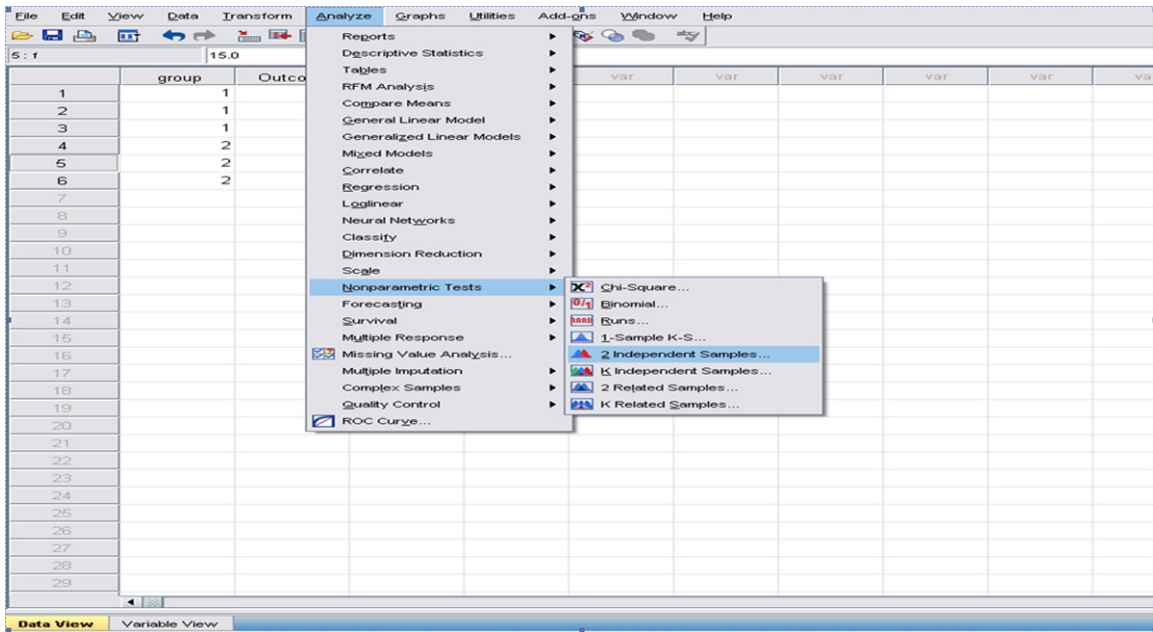


Figure 5. Section of order and inspection of dialog box.

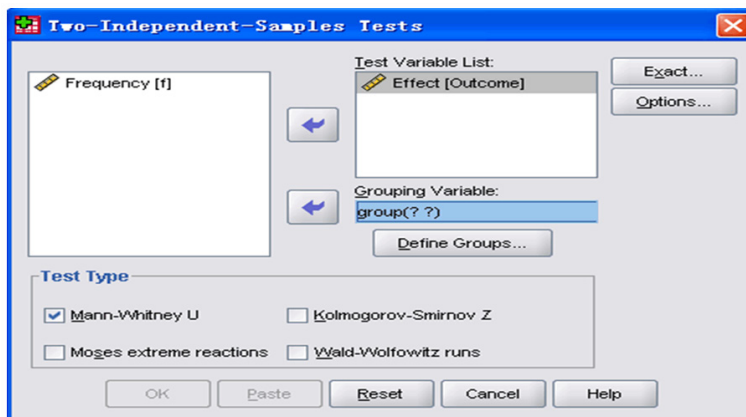


Figure 6. Order and inspection of main dialog box.



Figure 7. Setting of dialog box for grouped variables.

ing nursing method based on the transformation, and it is the nursing intervention mode mainly depending on nurses, and each nursing intervention can be implemented purposefully and systematically for patients in the treatment process, which thus significantly improves the effects of drugs and obviously reduce incidence. By means of this study, the author has discovered that the comprehensive nursing intervention for the children with spleen deficiency syndrome arising from use of antibacterial agents has helped the parents fully understand the cause of the disease and daily nursing methods and other aspects, which plays an important role in reducing the disease relapse of children. Furthermore, such comprehensive nursing method has significantly improved the therapeutic effects. It can be seen from the results of this study that the total effec-

Spleen deficiency syndrome nursing

Table 2. Ranks

	Group	N	Average ranks	Sum of ranks
Effect	Observation Group	60	53.38	3202.50
	Control Group	60	67.63	4057.50
	Total	120		

Table 3. Test Statistics

	Effects
Mann-Whitney U	1372.500
Wilcoxon W	3202.500
Z	-2.444
Asymptotic significance (both sides)	0.015

^aControl group and observation group.

tive rate of therapeutic effects in the observation group treated with comprehensive nursing reached 88.33% while the total effective rate in the control group treated with routine nursing was 66.67%. Through comparison, the therapeutic effects in the observation group was far superior to that in the control group, with a significant difference between both groups ($P < 0.05$).

Conclusion

In conclusion, the clinical use of the comprehensive nursing intervention mode can enable nurses to better communicate with children and their parents, and to better learn the development of disease conditions and timely put forward effective therapeutic schemes, and strengthen the compliance of children, and develop the important function in promoting treatment, and thus significantly reducing the treatment time. Additionally, it can also enhance the understanding of parents in all aspects, and plays a vital role in reducing the relapse of children. Therefore, the comprehensive nursing intervention can bring great effects for children with spleen deficiency syndrome arising from use of antibacterial agents, and is a very effective nursing method and has the propelling function in clinical research.

Acknowledgements

This study was supported by the Shandong Province 2015-2016 Science and Technology

Development Plan Project of Traditional Chinese Medicine (Study on the correlation between children with spleen deficiency syndrome and the use of antimicrobial agents, No. 2015-408).

Address correspondence to: Xiaohong Zhu, Neck, Shoulder, Waist and Leg Pain Specialist of Yantai Traditional Chinese Medicine Hospital, No.39 Yantai Hospital of Traditional Chinese Medicine Xingfu Road, Zhifu District, Yantai 264013, China. E-mail: xiaohongzhu1214@sohu.com

References

- [1] Liu MY, Chi RX, Sun CL, Shao S and Han F. Summary of the study on the relationship between spleen deficiency syndrome in children and use of antibacterial agents. *China Medical Herald* 2017; 27: 52-55.
- [2] Long YJ. Investigation of children diet feeding method and relevant factors on the formulation of spleen deficiency syndrome in children. *Journal of Hebei Medicine* 2016; 22: 1222-1224.
- [3] Lu W. Improvements on feeding methods can achieve great effect. *China Medical Herald* 2004.
- [4] Liu X. Reason Analysis and countermeasures of nurse-patient disputes in pediatric emergency department. *Today Nurse* 2004; 2: 69.
- [5] Cui J, Wu GX and Jiang Q. Evaluation on the effects of single use of chiropractic therapy for the children with spleen deficiency syndrome [A]. 2009 Academic Annual Meeting Proceedings (Second Part) of the China Association for Acupuncture and Moxibustion [C] 2009; 454-458.
- [6] Chen W. 215 cases concerning acupuncture therapy for the children with splenasthenic diarrhea. *Zhongguo Zhen Jiu* 1996; 3: 48.
- [7] Xu XF. Mild moxibustion therapy for the children with splenasthenic diarrhea with moxa sticks. *Zhongguo Zhen Jiu* 1986; 4: 55.
- [8] Zhou H, Lin ZQ and Lu DN. Investigation and analysis of the use conditions of antibacterial agents in pediatric outpatient department of our hospital. *Chinese Journal of Pharmacovigilance* 2012; 9: 566-568.
- [9] Yan M. Exploration and practice of people oriented nursing services. *Zhonghua Hu Li Za Zhi* 2004; 39: 39-41.