

The evaluation of glutinous rice roots decoction sponge bath treatment for sweating syndrome in children.

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Abstract

Objective: Explore the effect of TCM external treatment of glutinous rice roots decoction sponge bath method treatment to the children with sweating. **Methods:** To collect 70 sweating syndrome of children in the First and second Affiliated Hospital of Guangzhou University of Traditional Chinese Medicine, were randomly divided into the control group and the experimental group. Each group has 35 children. The control group is using Chinese herbs treatment, the experimental group is using traditional Chinese Herbs and sponging bath with the decoction of glutinous rice root. **Results:** In this study, ultimately the effective number of cases: 29 cases in the control group and 31 cases in the experimental group. 7 days after the intervention, sweating symptoms were improved, and have statistically significant in the efficacy difference lung health is not solid of the two groups $p=0.017$, other syndromes of the two groups ($p=0.006$).

Conclusion: The sponging bath with the decoction of glutinous rice root to the sweating syndrome of children has been confirmed effective. The research results will help to promote family self-treatment of the sweating syndrome of children, it is safe and will be treatment resides in daily life, with simple, convenient, effective, should be widely applied.

Keywords: Glutinous rice root, sponge bath, children sweating, syndrome.

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Introduction

Sweating syndrome refers to some function can't operate normally, nutritional imbalance, the organ disability or could be induced by the presence of various dominant or recessive factors inside and outside of the body, thereby causing a symptom of sweating, which is a common symptom in clinical miscellaneous disease [1]. Currently there widely exists the phenomenon of children with infectious diseases received antibiotics or glucocorticoid treatment, causing the increasing number of children suffering from sweating syndrome [2]. The internal treatment of traditional Chinese medicine (TCM) are commonly used in clinical treatment of sweating syndrome in children, but it is hard for children to take decoction and because of its bitter taste and long course of treatment, which results in failure to treatment [3]. Meanwhile, modern medicine often treat sweating syndrome through the regulation of autonomic nerve function, suppressing the secretion of sweat gland, etc. But these treatments are limited by the side effects of such drugs. Transdermal administration is the third generation of administration method recommended by WHO, which is a new treatment technology researched in recent years [4,5]. This research investigated the evaluation of glutinous rice roots decoction sponge bath treatment which belongs to external treatment of TCM for sweating syndrome in children, the results show that this method can offer good supporting effect in treating sweating syndrome of children compared with internal decoction treatment of TCM, which provide valuable reference for clinical treatment of sweating syndrome in children and will actively outreach in hospitals and communities. The details of this research are reported as follows.

Study objects

Study process

The sources of cases During March 2012 and March 2013, all cases are from pediatric outpatients in the First and Second Affiliated Hospital of Guangzhou University of Traditional Chinese Medicine. This study was approved by the medical ethics committee, and families have signed informed consent.

Inclusion criteria

The patients who conform to the diagnosis of sweating syndrome in children according to the standard of diagnosis and curative effect of traditional Chinese medicine

The patients' age range between 1 to 14 years

The sweating symptom has lasted more than one month

The patients' relatives understand the situation of study and agree to participate in this study. And patients can go to the clinic for treatment on time

The patients didn't received had any other therapies in addition to internal decoction treatment of traditional Chinese medicine

Exclusion criteria

The patients suffer from other diseases which can explain the symptoms of hyperhidrosis in children

The patients resolutely refused to take TCM therapy or can't cooperate with intervention and investigations for other reasons

The patients who are allergic to glutinous rice roots, yapping fen power or other traditional Chinese medicine

Case exit and processing

Case exit refers to the patients who do not want to collect clinical data, can't cooperate well or didn't receive treatment in accordance with standard processes

Case processing refers to the registration of exit reason and exit time.

Suspension criteria and processing

Suspension refers to the patients who receive other therapies, appear severe side effects or complications during our treatment process;

Record the time, cause and dispose of suspension.

Internal decoction treatment of TCM and nursing: According to different syndrome types and individual physique, patients receive dialectical medication (decoction), and 7 days are a period of treatment. Decoction should be taken after meal when it is warm, and the most appropriate choice is taken in the early morning or in the morning. The vital signs, haemoglobin and body weight of patients should be observed during treatment process. If patients suffer from exogenous cold, they should stop taking the tonic to prevent situation that "the invaders stay behind the closed doors" [5]. Patients' parents are told to conduct psychological counselling with patients well, and as for children are prone to produce negative emotions such as dysphonia, parents should give spiritual comfort and encourage them adhere to medication.

Routine nursing: The families of children are guide to arrange patients' daily life reasonably. The windows of patients' living room should be ventilated at regular time [6], maintaining proper temperature and humidity in order to keep children's personal hygiene and health.

The control group received the above-mentioned internal decoction treatment and routine nursing.

The nursing intervention of experimental group: Patients receive sponge bath using glutinous rice roots decoction. 50 g glutinous rice roots were added into 2500 ml cold water and decocted together. According to the standard weight of 15 kg to children, 50 g glutinous rice roots and 500 ml of cold water should be added for each additional 2 kg in ascending order [7]. After the drug starting boiling for 20 minutes, the medicine juice is retained while the dregs are filtered. The glutinous rice roots decoction should be cooled to 32°C -34°C, and children get sponge bath for 15 minutes, the room temperature should be maintained at 25°C -27°C during sponge bath. The appropriate time for sponge bath is 1 hour after meal once a day and 7 days are a period of treatment. The curative effect was evaluated on the 8th day while parents are asked to fill out the questionnaire and follow-up evaluation form (see Appendix for details). Glutinous rice roots are provided by Guangdong Kong Mei Pharmaceutical Co., Ltd. and for the same batch. During sponge bath, first, the operator washes hands, prepare the substance ready and bring it to the bedside of patient. While patient gets comfortable supine position. Second, small towel is dipped into glutinous rice roots decoction, twisted to the semi-dry and

wrapped in a glove-like shape around operator's hands to pat patient in centrifugal direction, each side should be patted for 3min, finally dry patients with a large towel. The order of the sponge bath is upper limbs first: first lateral neck, lateral part of upper arm, arms, and then lateral breast, armpits, the inside part of upper arm, and finally the palm. The same method are used for the other side of the upper limbs; then the operator pat patient's back and waist for 3min and the patient wear jacketing. Afterwards, the operator conduct sponge bath of lower limbs in sequence of iliac, outer side of thigh, dorsal, groin, inner thigh, ankle, and finally below the femur, the popliteal fossa, heel. And dry patients with a large towel 3 min later. The same method is used for the other side of the lower limbs, at last patient wears pants. During the whole process, the operator should pay close attention to the local and systemic reactions of patient.

The evaluation of curative effect on glutinous rice roots decoction sponge bath treatment.

Evaluation of curative effect: On glutinous rice roots decoction sponge bath treatment for sweating syndrome in children, the parents conduct a total of twice evaluation on the first day and eighth day (namely, the seventh day after treatment), checking the shoulder, back and underwear of children and detecting their sweat loss status by hand.

Significantly effective: There are no sweating symptoms during evaluation on eighth day, and patients' food taking, urine and stool status, sleep status, mental state and index finger collaterals return to normal. Recurrence doesn't occur after one month's followed up.

Effective: The sweating symptoms alleviates during evaluation on eighth day, and patient's food taking, urine and stool status, sleep status, mental state and index finger collaterals improve.

Invalid: The phenomenon of spontaneous sweating or night sweating still exists 7 days later. And patient food taking, urine and stool status, sleep status, mental state and index finger collaterals aren't changed or even worse The evaluation of clinical symptoms According to the clinical research guiding principles of new medicine on traditional Chinese medicine (2002 provisions) and other related reference materials, the 9 common accompanying situation of children with hyperhidrosis syndrome will be evaluated in accordance with the models of TCM, mainly for anorexia, loose stool, urine is scanty and dark, poor sleep at night, languid and fatigue, pale tongue, teeth marks on tongue, white and greasy tongue coating, pulse Shanxi and easy to catch a cold. The degrees of symptoms in patient is divided into cured, improved, incurred and is referred to as 0, 1, 2, respectively and complete the evaluation of reliability and validity.

The observation and record of adverse events: Adverse event refers to all conditions which go against to disease cure after a sort of treatment to patient who is under clinical receipts collection, however, there's no necessary connection exists between this condition and the use of drugs. The time and measures in adverse events of patients should be registered in this clinical observation.

Data collection and statistical methods

The Excel software is used to create the database and to input data of patient. SPSS17.0 software is used for statistical analysis of data obtained, and qualitative data is analyzed by chi-square test. With regard to the grid number whose theoretical value is less than 5, more than 20% of the sample is analyzed by Monte Carlo exact test. Meanwhile, the grade data is analysed by non-parametric tests.

Results

The study included a total of 70 cases including 35 cases in the control group (comprising lung health is not solid type and other syndrome types) receive internal decoction treatment of TCM; 35 patients in the experimental group (comprising lung health is not solid type and other syndrome types) receive internal decoction treatment of TCM plus glutinous rice roots decoction sponge bath. During the study, 6 patients in the control group who refused to take medicine exited this study, and the remaining patients completed the measurement and assessment of relevant indicators. There are 4 patients in experimental group didn't take daily glutinous rice roots decoction sponge bath in accordance with the requirements were excluded, and the rest patients completed glutinous rice roots decoction sponge bath intervention according to requirements. Finally there were 29 effective cases in the control group and 31 cases in the experimental group.

The comparison of basic conditions between two groups

The X^2 value in gender is 0.659, $P=0.417$. The Z value in Age is -1.579, $P=0.114$. The X^2 value in the comparison of syndromes is 0.66, $P=0.4168$ and the difference was not statistically significant ($P>0.05$).

Comparison of basic conditions between group and group

The X^2 value in gender is Fisher's Exact test $p=0.169$. The Z value in Age is -1.730, $P=0.084$. The X^2 value in the comparison of syndromes is Fisher's Exact test, $P=0.737$, and the difference was not statistically significant ($P>0.05$).

The comparison of clinical symptoms before treatment in different syndrome types between two groups

comparison of the degrees of different clinical symptoms before intervention between two groups including sweating, food taking, urine and stool status, sleep status, mental state, tongue quality, tongue coating, pulse, index finger collaterals, etc. There was no statistically significant difference ($P>0.05$) and the results are comparable.

The comparison of curative effect on different syndrome types between two groups: comparison of lung health is not solid type between two groups are illustrated in Table 5, the sweating symptoms of patients in experimental group with glutinous rice roots decoction sponge bath significantly improved compared with the control group, and the Z value in non-parametric tests is -2.651, $P=0.008$, $p<0.01$, the difference was statistically significant. The comparison of other syndrome types index between two groups such as the degree of sweating was analyzed with non-parametric test, $Z=-2.793$, $P=0.005$, $p<0.01$, the difference was statistically significant.

The comparison of the clinical symptoms after treatment of different syndrome types between two groups: 7 days after treatment, the related indexes of lung health is not solid type and other syndrome types in experimental group all improved, and the sweating symptom improved remarkable among these indexes. Analyzing the data from the associated symptoms and comparing data from clinical symptoms after intervention, we can conclude that the curative effect in experimental group was significantly effective. We also conducted variance analysis between two groups and found the difference in sweating, food taking, urine and stool status, tongue quality of the lung health is not solid type and in sweating, food taking, urine status of other syndrome types is statistically significant ($P<0.05$).

Discussion

The study conducted exploratory research of the clinical curative effect on glutinous rice roots decoction sponge bath adjuvant treatment for sweating syndrome in children, summarizing and discussing the preliminary results. The influence of glutinous rice roots on sweating symptoms in children with sweating syndrome after receiving glutinous rice roots adjuvant therapy, the sweating symptoms in patients of experimental group improved significantly. And the comparison between two groups with lung health is not solid type showed that the sweating symptoms in patients of experimental group who received glutinous rice roots decoction sponge bath improved significantly compared with the control group, the Z value in nonparametric tests is -2.651, $P=0.008$, $p<0.01$, the difference was statistically significant. Compared two groups with other syndrome types, we used the non-parametric test to analyse the degree of sweating index, $Z=-2.793$, $P=0.005$, $p<0.01$ and the difference was statistically significant. These results are associated with the effects of glutinous rice roots such as nourishing Yin, removing antiperspirant fever, stopping sweating, etc. [8]. Glutinous rice roots decoction sponge bath treatment has good supporting effect on sweating syndrome in children [9]. Besides, glutinous rice roots decoction sponge bath has more significant effect on sweating syndrome in children of lung health is not solid type than other syndrome types. After using glutinous rice roots decoction sponge bath, there are 13 patients with sweating syndrome of lung health is not solid type improved markedly, whereas there are 7 patients of other syndrome types improved markedly. So our study showed that glutinous rice roots decoction sponge bath has more pronounced effect on children with sweating syndrome of lung health is not solid type.

The effect of glutinous rice roots on TCM symptoms of children with sweating syndrome In recent years, the incidence of sweating syndrome in children has a rising trend [10]. Sweating syndrome refers to some function can't operate normally, nutritional imbalance, the organ disability or coli unstable induced by the presence of various dominant or recessive factors inside and outside of the body, thereby causing a symptom of sweating, which is a common symptom in clinical miscellaneous disease [11]. Since there widely exists the phenomenon of children with infectious diseases received antibiotics or glucocorticoid treatment currently, combined with weakness, deficiency of Qi and Yin, nutrition

and health disorders, defence unstable, etc. the sweating syndrome occurs [12]. This study observed that two groups of patients all have varying degrees of anorexia, abnormal urine and stool, poor sleep, fatigue, un-dynamic, easy to catch colds and other accompanying TCM symptoms.

All symptoms of patients in both groups were improved 7 days after receiving treatment, while the curative effect of glutinous rice roots decoction sponge bath adjuvant therapy intervention in the experimental group is more significant, in which the sweating syndrome in children of lung health is not solid type improved more significantly than those only received internal decoction treatment of TCM, and the children's food taking, urine and stool habits, tongue quality and other clinical TCM symptoms also improved to a certain extent. Besides, the difference of effect after treatment on two groups of patients with lung health is not solid type was statistically significant ($P < 0.05$) but there was no statistically significant difference in sleep, mental state, tongue coating, pulse condition, follow-up of catching cold in two groups ($P > 0.05$). In addition, the accompanying symptoms weren't improved significantly in other sweating syndrome types of patients using glutinous rice roots decoction sponge bath, only the difference in the symptoms of sweating, food taking and urine symptoms was statistically significant ($P < 0.05$) compared with the control group.

The discussion to mechanism of glutinous rice roots decoction sponge bath adjuvant treatment for sweating syndrome in children. The primary pathogenesis of sweating syndrome in children is absence of righteousness, defence unstable, deficiency of Qi and Yin and spleen health loss, which cause spleen deficiency and indigestion [13], so that the appetite loss, then wood flourishing and soil restrained as well as the Qi of spleen obstructed so that it is hard to stop sweating. When metabolism slows down, a large amounts of waste accumulates inside the body and results in poor mind, fatigue, small voice, poor appetite and loose stools, even result in diarrhoea, urinate long or incontinence, abdominal cold combined with pain [14], easy to feel backache or leg pain, pale fat tongue, white greasy or tiny white greasy tongue coating, slow pulse or even the pulse is hard to feel, etc. These are all the physical manifestation of yang deficiency [15]. The glutinous rice roots have effects on nourishing Qi, reducing phlegm, benefitting stomach and producing saliva, calming Liver, dispelling rheumatism, nourishing Yin, removing antiperspirant fever and stopping sweating [16]. In this study, one week after intervention of patients in the experimental group, their symptoms improved significantly compared with the control group, and to a certain extent, glutinous rice roots decoction sponge bath help children recover their functions of spleen and stomach, production and conversion of Qi and blood, so that defines strengthens as well as cold symptoms improves. The feasibility of applications in glutinous rice roots decoction sponge bath adjuvant treatment for sweating syndrome in children usually refuse to take medicine because of the bitter taste of TCM, which affected the therapeutic effect to some extent. Using external treatment of TCM through transdermal administration has better curative effect and is simple to proceed as well as easy to be accepted by children and parents. All in all, the glutinous rice roots decoction

sponge bath can improve the symptoms of sweating syndrome in children, which can resides in the way of daily life and is safe and effective. Besides, this treatment reduces drug use and is more in line with the actual situation of children. In addition, glutinous rice roots can either be edible or be medicinal, so using glutinous rice roots to treat sweating syndrome is quick to be operated and its effect is obvious.

Conclusion

The glutinous rice roots has characters such as sweet, flat and safe, it also has effects such as benefitting stomach and producing saliva, stopping sweating and removing fever. Besides, the glutinous rice roots are easy to obtain and inexpensive, according to this drug's efficacy, changing the way of using glutinous rice roots is very helpful to treat sweating syndrome in children. The use of glutinous rice roots decoction sponge bath has many advantages: convenient operation, reducing children's agony by changing the way of medication and easily to be accepted by parents and children. Meanwhile, using glutinous rice roots decoction sponge bath can not only shorten the treatment time and improve the effect of traditional internal medication treatment; but also make for the rehabilitation of primary disease, providing valuable reference for clinical treatment of sweating syndrome in children. The glutinous rice roots decoction sponge bath treatment for sweating syndrome in children has superiorities such as effective, low-cost and easy operation over internal decoction treatment of traditional Chinese medicine. It is worthy to outreach applications this treatment in hospitals and communities.

Conflict of interest

Authors declare no conflict of interest and figures.

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