

Effectiveness of acupoint sticking therapy in common chronic diseases, with disease differentiation principle

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Objective: To explore the effectiveness of acupoint sticking therapy (AST) in three common chronic diseases including respiratory diseases, digestive system diseases, and chronic pain according to the disease differentiation principle.

Methods: A total of 200 eligible patients with respiratory diseases, digestive diseases, or chronic pain were enrolled in this study. AST was applied based on their specific conditions. The treatment effectiveness was compared three months later.

Results: The overall positive response rate was 87.50%, with 54.00% overall rate of significant effectiveness. For the respiratory diseases, digestive diseases, and chronic pain, the overall response rate was 87.69%, 80.00%, and 93.33%, respectively ($P>0.05$), whereas the rate of significant effectiveness was 46.15%, 43.33%, and 69.33% ($P<0.01$).

Conclusions: AST is effective for all these three common chronic diseases, particularly for the chronic pain.

Keywords: Acupoint sticking therapy (AST); respiratory diseases; digestive diseases; chronic pain



Submitted Dec 27, 2013. Accepted for publication Jan 23, 2014.

doi: 10.3978/j.issn.2224-5820.2014.01.05

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Introduction

Acupoint sticking therapy (AST) is a traditional Chinese medicine (TCM)-based tropical treatment that stick the pasty preparations, which are creams mixed with various medicinal extracts and liquids, to certain acupoints or the diseased sites to achieve specific therapeutic effectiveness by exerting the efficacies of drugs and/or by acting on acupoints and meridians. Most previous reports on AST focusing on the respiratory system, immunologically in particular, demonstrated effectiveness of AST in treating chronic respiratory diseases including chronic bronchitis, allergic rhinitis, and bronchial asthma (1-3). In recent years, AST has been applied in the management of various chronic diseases due to its advantages in flexible formulas, simple procedures, and documented safety and effectiveness (4-6). Based on our rich experiences in AST applications, we have modified its prescriptions and achieved good clinical efficacies in treating chronic diseases based on proper

disease differentiation.

Subjects and methods

Clinical data

A total of 200 eligible patients who had received AST due to their respiratory diseases, digestive diseases, and/or chronic pain in our acupuncture department since January 2013 were enrolled in this study. Among them there were 98 men and 102 women, with a mean age of (32.08±15.46) years. Their mean disease course had lasted (6.93±2.98) years.

Diagnostic criteria, inclusion criteria, and exclusion criteria

Diagnostic criteria: the diagnoses were based on the diagnostic criteria listed in the “TCM Syndrome Diagnosis and Efficacy Standards” and “TCM Internal Medicine” (7).



Figure 1 (A,B) acupoint sticking therapy in patient with anaphylactic rhinitis; (C) acupoint sticking therapy patient with knee pain.

The respiratory diseases include allergic rhinitis, chronic pharyngitis, chronic bronchitis, allergic asthma, and colds due to physical weakness; the digestive diseases include chronic colitis, chronic gastritis, diarrhea, constipation, indigestion, etc.; and the chronic pain include pain caused by cervical spondylosis, lumbar muscle strain, lumbar disc herniation, rheumatoid arthritis, osteoarthritis, osteoporosis, and other chronic diseases. These diseases are differentiated as “Cold Syndrome” from the TCM perspective, and are featured by “aggravates when meeting colds and alleviates under warm conditions”.

Inclusion criteria: (I) met the above diagnostic criteria; (II) males or females aged 1 to 76 years; and (III) signed the informed consents.

Exclusion criteria: (I) diabetic patients with poor blood sugar control; (II) accompanied with severe diseases in cardiovascular system, liver, kidney, or hematopoietic system; (III) with persisting asthma; (IV) pregnant women; (V) with blood syndrome; (VI) with body temperature higher than 38 °C; and (VII) with particularly sensitive skin or traumatic skin.

Treatment

Formulas

The preparations were made based on the specific diseases and then applied in the specific acupoints. The formulas for the respiratory diseases mainly include mustard seed, asarum, euphorbia, cinnamon, unprocessed *Rhizoma arisaematis*, and unprocessed *pinellia*. The formulas for the digestive diseases mainly include cloves, pepper, mustard seed, cinnamon, and wormwood leaves (8-10). The formulas for the chronic pain mainly include *speranskia*, *corydalis*, mustard seed, asarum, wormwood leaves, and borneol (11).

The formulas were prepared in accordance with the

principles of “Sovereign, Minister, Assistant, and Courier”; after being powdered, they were prepared into creams using honey and sugar. The drug is prepared immediately before its usage.

Selection of acupoints

Two groups of acupoints were selected for respiratory diseases: group A, Bailao, Dingchuan, Feishu, and Tiantu; and group B, Fengmen, Gaohuang, Shenshu, and Dazhui. Two groups of acupoints were selected for digestive diseases: group A, Zhongwan, Tianshu, Qihai, Zusanli, and Shangjuxu; and group B, Pishu, Weishu, Shenshu, and Xiajuxu. Bilateral acupoints were applied, and the two groups of acupoints were alternately used. For the chronic pain, tropical acupoints, in particular the Ashi, were used (8).

Course of treatment

AST was applied twice weekly for three months.

Approaches

After the skin around the acupoint was cleaned, put the prepared cream onto the round anti-seepage film of a 5.5-cm round sticking tape, and then stick the tape onto the above acupoints (*Figure 1*). The duration of sticking is based on the response of individual patient. It is typically 4-6 hours for adults and 1-2 hours for the children for their delicate skin. For patients with less obvious skin burning pain during the treatment, the time of sticking can be extended to eight hours. For patients with obvious skin burning pain, however, the period of sticking should be shortened appropriately. During the treatment, the patient must avoid staying in air-conditioned room, smoking or alcohol use, eating irritating (e.g., cold, fatty, or spicy) foods, or eating foods (e.g., mutton, chicken, duck, shrimp, and crab meat) that may cause allergy symptoms.

Table 1 Comparison of the AST efficacies among different diseases (n)

Group	Number	With significant effectiveness	Positive response	Negative response	Overall positive response rate (%)	Rate of significant effectiveness (%)
Respiratory diseases	65	30	27	8	87.69	46.15
Digestive diseases	60	26	22	12	80.00	43.33
Chronic pain	75	52	18	5	93.33	69.33
Total	200	108	67	25	87.50	54.00

Note: the overall response rate showed no significant difference among these three disease categories ($\chi^2=5.421$, $P=0.066$). However, the rate of significant effectiveness were significantly different among these three disease categories ($\chi^2=11.46$, $P=0.003$).

Efficacy standards

According to the Guidelines on the Clinical Trials of New TCM Drugs (12), the treatment efficacy was evaluated based on the clinical manifestations of the relevant diseases, scores of the scale for assessing the impacts of diseases on life and work, and the short form of the McGill Pain Questionnaire (SF-MPQ). Both groups were scored before and after the treatment.

The following efficacy evaluation criteria was applied: significant effectiveness, the symptoms and signs are obviously improved for at least two months, with the syndrome score reduced by $\geq 70\%$; improved, the symptoms and signs are improved for at least one month, with the syndrome score reduced by $\geq 30\%$; and ineffective, the symptoms and signs are not improved or even worsen for at least one month, with the syndrome score reduced by $< 30\%$ (12,13). The syndrome score was calculated using the following formula (Nimodipine method): Syndrome score = (score before treatment - score after treatment) / score before treatment $\times 100\%$.

Statistical analysis

Statistical analysis was performed using SPSS 17.0 software. The count data were analyzed using chi square test.

Results

After the AST, the overall response rate was 87.50%, and the overall rate of significant effectiveness was 54.00%. For the respiratory diseases, digestive diseases, and chronic pain, the overall response rate was 87.69%, 80.00%, and 93.33%, respectively ($P>0.05$), whereas the rate of significant effectiveness was 46.15%, 43.33%, and 69.33% ($P<0.01$), indicating that AST was effective for these three chronic

diseases, in particular the chronic pain (Table 1).

Discussion

AST, initially described in the Plain Questions of the Yellow Emperor's Internal Classic, is a traditional topical therapy. According to the Ling-Tai Xu, a famous doctor in Qing dynasty, "the cream is stuck to acupoints to block the Qi, allowing the effective drug components enter the striae and interstitial space via the skin holes to open and pass through meridians. This therapy can drive the disease out of body or directly small the lesions. Compared with the medications, it has its unique advantages". From the perspective of modern medicine, AST can exert the roles of both acupoints and drugs. The warm drugs, after having been stuck on the acupoints, can be absorbed locally and then irritates and penetrates the stratum corneum to enter the intercellular substances. Then, they can exert their local and systemic effects via the conduction of meridians. For example, they affect the physical and chemical receptors, thus directly and reflexively increase the functions of cerebral cortex and autonomic nerves, improve the body's non-specific immunity, reduce allergy status, improve the function of the hypothalamic-pituitary-adrenal axis, and thus exert their roles in preventing and treating diseases (14). Stratum corneum can store substances, making the blood concentration versus time curve become relatively flat. The avoidance of the first-pass effect in the gastrointestinal tract can increase the bioavailabilities of drugs (15). Thus, the AST has its unique advantages.

"The disease differentiation principle" is a core principle in TCM. The modern TCM has also proposed the integration of "syndrome differentiation" and "disease differentiation". According to Wei, only by doing so, the advantages of both TCM and western medicine can be mutually supplemented (16). In the sequence, "disease

differentiation first, followed by syndrome differentiation” has also been argued (17). “Syndrome differentiation first” enables the doctors to grasp the basic rules of disease progression and understand the nature of the diseases, which is undoubtedly the basis and premise of proper syndrome differentiation and treatment. After proper “syndrome differentiation”, we can learn the disease locations, cold/heat, deficiency/excess, and changes in Qi and blood. The disease location is particularly important, which ensures the targeted administration of drugs (18). Tian-jiu therapy (or, medicinal vesiculation) has been applied in our department for more than ten years. Clinical observations in the past years have shown that this therapy, when applied based on disease differentiation, can achieve satisfactory efficacy (19,9). However, the Tian-jiu therapy highly relies on the seasons and weather, whereas patients with chronic diseases account for the majority of our outpatient visits. Thus, on the basis of disease differentiation, we have applied the AST in treating patients with chronic diseases with concomitant cold syndrome. Acupoints themselves can be linked with the internal organs through the conduction of meridians, whereas disease differentiation makes the drug selection more targeted. Thus, under the guidance of the channel-ushering drugs, the acupoints obtain enhanced actions and therefore can regulate the internal organs in a more effective way. Thus, the overall response rates tended to be high.

Among these three chronic diseases, the chronic pain was particularly responsive to the AST, which may be explained by the fact that the drug cream was directly stuck to the diseased sites (i.e., the local meridians and ashi acupoints). Pain is often caused by blockage. The mustard seed, wormwood leaves, and other “warm” medicinals can warm channels and expel cold, whereas ground ivy and corydalis can penetrate deeply into the joint meridians and exert their functions in expelling wind, removing dampness, promoting blood circulation, and relieving pain. The combination of these drugs, after the topical application, can reach directly into the diseased sites, expelling various disorders such as cold, dampness, and stasis that are located “inside the skin but outside the membrane”. Thus, it can achieve good efficacy in alleviating pain within three months. In contrast, the chronic respiratory and digestive diseases are often deep inside the internal organs rather than the muscles or bones. Therefore, longer treatment is required to adjust the internal organs before the respiratory and digestive symptoms can be improved.

Different from the conventional Tian-jiu therapy, in the AST we used honey and sugar to replace ginger juice in

preparing the cream. The ginger juice has strong medicine property and therefore can cause excessive skin irritation. As a result, patients often cannot tolerate it and need to remove the cream earlier, and thus the therapeutic effect of the AST cannot be fully exerted. In some cases, the ginger juice can cause severe skin blistering, which may dramatically lower the patients’ adherence to this therapy. Therefore, honey and sugar are used instead in our center. The honey and sugar have mild property, which extends the sticking duration and makes the efficacy more persistent.

In previous literature, AST is mainly used in those who had already become diseased. In other words, it is mainly used for treating diseases or preventing the progression/relapse. However, the role of AST is now far beyond “treating diseases”. We will further investigate in this field to apply the AST in “treating non-disease” (or, prevention), so as to bring more health care benefits to those who have not suffered from these diseases.

Acknowledgements

Disclosure: The authors declare no conflict of interest.

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Cite this article as: He GH, Ruan JW, Xiang T. Effectiveness of acupoint sticking therapy in common chronic diseases, with disease differentiation principle. *Ann Palliat Med* 2014;3(1):32-36. doi: 10.3978/j.issn.2224-5820.2014.01.05