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Special Topic for 973 Program

Acupuncture and Irritable Bowel Syndrome: A Population-based Epidemiological and Clinical Study

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【摘要】目的: 对上海市社区肠易激综合征(irritable bowel syndrome，IBS) 的患病率情况进行调查研究，以了解现状、发现问题并提出相应对策，同时开展针灸干预治疗的疗效观察。**方法:** 用整群、随机抽样方法，对上海长桥社区常住人口中 18～80 岁的 1 685 人进行问卷调查，了解按Manning及罗马标准判断的有症状人群的症状学和患病率情况。对自愿进行针灸治疗的IBS患者进行电针治疗。**结果:** 上海社区符合Manning标准的IBS人群患病率为 11.45 %，符合罗马标准的患病率为 5.04%。男女人数之比为 0.77: 1，男性患病率低于女性，分别为 10.62%、12.19%，但差异无显著性。有症状人群中，38.86%集中在 46~65 岁。针灸治疗IBS患者 62 例，电针天枢穴组（32 例）有效率 84.38%，电针大横穴组（30 例），有效率 56.67%，两组有效率差异有统计学意义 ($P<0.05$)。**结论:** IBS是上海社区的常见病、多发病，需要开展更大规模大样本的流行病学调查，并广泛而深入地开展社区预防和医疗。针灸疗法是治疗IBS的有效方法，有必要进一步推广应用。

【关健词】肠易激综合征；流行病学；针灸疗法

【Abstract】Objective: To explore the prevalence of irritable bowel syndrome (IBS) based on a community population of Shanghai and the treatment of IBS by acupuncture therapy. **Methods**: A population of 1 685 subjects aged between 18-80 years were randomly selected by clustered sampling from the inhabitants in Changqiao Community of Shanghai to receive a questionnaire, for understanding the symptomatology and prevalence of IBS according to modified Manning and Rome Ⅱ criteria, and the voluntary IBS patients were treated by acupuncture therapy. **Results**: The community- based prevalence of IBS was 11.45 % and 5.04% respectively according to modified Manning criteria and Rome Ⅱ criteria. The ratio of male and female was 0.77:1 in IBS patients and the proportion was 10.62% and 12.19% respectively. But there were no significant difference in prevalence between different age groups（$P>0.05$）. IBS is more common in subjects aged between 45-65 years (38.86%). Regarding the 62 IBS patients treated by electroacupuncture (EA), the total effective rate in Tianshu (ST 25) group ($n=32$) was 84.38%，and it was 56.67% in Daheng (SP 15) group ($n=30$), which showed a significant difference. ($P<0.05$). **Conclusion**: IBS is a commonly encountered disorder in Changqiao Community of Shanghai and should be taken into consideration for human welfare, disease prevention and further epidemical investigation. Acupuncture treatment is recommended for treating IBS due to its satisfactory therapeutic effect.

【Keywords】Irritable Bowel Syndrome; Epidemiology; Acupuncture-moxibustion Therapy
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Irritable bowel syndrome (IBS) is a common intestinal functional disorder, characterized by continuous or intermittent abdominal pain, bloating, and discomfort, accompanied by alterations to bowel habits, without gastrointestinal impairment. There is still no specific manifestation of IBS in biology. Therefore, the diagnosis is mainly determined by clinical symptoms and case history. Relative tests will possibly be conducted to exclude gastrointestinal impairment. The prevalence rate of IBS is high. It was reported that among outpatients with digestion issues, about 30%-50% are attributable to IBS and the prevalence rate is 15% abroad while that of Asia is around 5%[1]. Epidemiological investigations have been done in Beijing and Guangzhou. The prevalence rates of IBS vary according to different diagnostic criteria for IBS. The rate is 7.26% and 0.82% according to Manning and Rome Ⅱ criteria respectively in Beijing[2]. And it is 11.50% and 5.67% respectively in Guangzhou[3]. These show a significant difference of prevalence rate between the two cities.

This study has studied symptomatology and prevalence rate of IBS in a community population of Shanghai using a self-made IBS Symptoms Questionnaire by randomized clustered sampling so as to understand the current condition, discover the problems and take positive actions. Some IBS patients were intervened by acupuncture.

1 Epidemiological Study

1.1 Participants and methods

1.1.1 Participants and investigation procedure

During April and July in 2004, authors carried out a randomized clustered sampling research involving the inhabitants aged 18-80 years without a severe cognitive disability in Changqiao Community of Xuhui District of Shanghai. The sample size was estimated after reviewing the literature and taking Ⅰ error, Ⅱ error and allowable error into consideration. The prevalence rate was predicted as 15%, so 556 people would be consistent with this prediction, however it was set at 1 800 cases to increase the reliability of the survey due to a large number of people in Shanghai. The sample size of each practice was in proportion to the population of the area. The questionnaire covers abdominal pains, abdominal distension, and habit of discharging, morphology of stool, diet, life style, stress, consulting behavior, current treatment, illness history, and causative factors.

The number of individuals being surveyed was up to 1 685 and the rate of feedback was 93.61%.

1.1.2 Diagnostic criteria and statistical analysis

Detection rate was regarded as point prevalence rate in the research. The detection rate of IBS was defined by the modified Manning[4] and Rome criteria[5]. Those with a history of diabetes, hyperthyroidism, ulcerative colitis, history of any serious abdominal surgery, intestinal tract parasites, or severe pulmonary and cardiac disease were all excluded. The modified Manning criteria are as follows. ①abdominal pain accompanying abnormal defecation including loose stools, dry and hard stools, difficulty in defecation or abnormal frequency (≥3 times/day or＜3 times/week); ② Abdominal pain is relieved after defecation; ③ Abdominal distension; ④Mucus stool; ⑤Urgent defecation or feeling unable to defecate completely. IBS should be considered if there is abdominal pain coupled with at least two of the above symptoms. The symptoms described in the Rome criteria are almost the same as those mentioned above, but the duration of recurrence is at least 3 months and two of the symptoms above must occur at least in one fourth period of onset.

Chi-square test and *t* test were employed to determine the significance. The data analyses were performed using SPSS software.

1.2 Results

1.2.1 Population

Of 1 685 interviewees, 791 were male and 894 were female, aged between 18 and 80 years, averaged at (45±9) years.

1.2.2 Investigation results

Distribution of IBS in different genders and ages: The age proportion of the subjects was similar to that of the whole population in shanghai, which indicates that the survey was random. Among the samples, there were 193 interviewees suffering from IBS (11.45%) according to Manning criteria (the following analysis are all according to the Manning criteria except for any special explanations), while it was 85 according to Rome criteria (5.04%). of the 193 sufferers (84 males and 109 females), the ratio

of male and female was 0.77:1（Male was 43.52% and Female was 56.48%）. There was no significant difference in detection rate among male (10.69%), female(12.21%) and the total （11.48%）population (P＞0.05).

According to the proportion of the age groups of IBS sufferers, the group aged 46-65 run the highest risk (38.86%, occupied in sufferers). There was no significant difference in prevalence rate among different age groups (Fig.1). The detection rate of IBS according to Manning criteria and the distribution by gender and age are shown in table 1. The detection rate of IBS according to Rome Ⅱ criteria and the distribution by gender and age are presented in table 2.

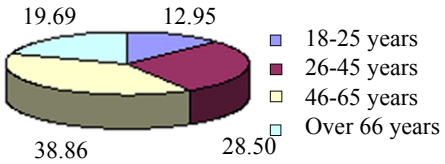

Fig.1. Proportion of each age phase

Table 1. Detection rate according to Manning criteria and the distribution of IBS in different genders and age groups (Cases)

Age	Male			Female			Sum		
(years)	Sample	Sufferer	Detection rate (%)	Sample	Sufferer	Detection rate (%)	Sample	Sufferer	Detection rate (%)
18-25	94	8	8.51	166	17	10.24	260	25	9.62
26-45	257	24	9.34	296	31	10.47	553	55	9.95
46-65	266	35	13.15	275	40	14.55	541	75	13.86
＞66	159	17	10.69	172	21	12.21	331	38	11.48

Table 2. Detection rate and distribution of IBS in different genders and age groups according to Rome criteria (Cases)

Age	Male			Female			Sum		
(years)	Sample	Sufferer	Detection rate (%)	Sample	Sufferer	Detection rate (%)	Sample	Sufferer	Detection rate (%)
18-25	94	1	1.06	166	6	3.61	260	7	2.69
26-45	257	11	4.28	296	13	4.39	553	24	4.34
46-65	266	20	7.52	275	18	6.55	541	38	7.02
＞66	159	8	5.03	172	8	4.65	331	16	4.83

Types of IBS: Of 193 subjects diagnosed with IBS according to the Manning criteria, the number of altering types was 60 (31.09%), simple-constipation 21 (10.08%), and simple-diarrhea 112 (58.03%).

Tendency of visiting a doctor: Of 193 subjects diagnosed with IBS, 143 (74.09%) patients did not think it necessary to visit their doctor if their symptoms were slight or stable, and only 50 (25.91%) patients with severe symptoms had seen their doctor.

2 Clinical Research on IBS Treated by Electroacupuncture

2.1 General data

After the survey, 62 patients with diarrhea-predominant IBS (D-IBS) were voluntary to receive acupuncture treatment (29 male, 33 female), aged from 19 to 64, with duration from 6 months to 30 years.

2.2 Group and treatment

2.2.1 Treatment group (n=32)

Acupoint: Tianshu (ST 25), bilateral.

Operation: After standard disinfection, a filiform needle was inserted into the acupoint by 0.5 cun and stimulated by HAN's Acupoint-nerve Stimulator (H.A.N.S) for 20 min per treatment, with a sparse/intensive pulse at AM 2/100 Hz, impulse width 0.2-0.6 ms, intensity 2-4 mA, once a day, 6 times as a treatment course, one day off between two courses, 2 courses in total.

2.2.2 Control group (n=30)

Acupoint: Daheng (SP 15), bilateral.

Operation: Same as the treatment group.

2.3 Criteria of therapeutic effects

The diagnostic and endpoint criteria of gastrointestinal disease for IBS was referred to in Rome II, and the *Criteria of Diagnosis and Therapeutic Effects for TCM Diseases and Syndromes*[6] stipulated by the State Administration of Traditional Chinese Medicine.

Rate (R) = [(Pre-treatment score－Post-treatment score) /Pre-treatment score]×100%.

Cure: Normal stools, other symptoms substantially relieved, R≥90%

Improvement: Frequency reduced remarkably, other signs improved, 30%≤R＜90%;

No effect: No improvement in stool frequency or other symptoms, R＜30%.

2.4 Statistical analysis

Ridit analysis was used to compare the therapeutic effects between the two groups after treatment.

2.5 Results

The data analysis revealed that the effective rate in the treatment group was significantly higher than in the control group (P＜0.05) (table 3).

Table 3. Comparison of therapeutic effects between the two groups (Cases)

Groups	*n*	Cure	Improvement	No effect	Total effective rate (%)
Treatment	32	6	21	5	84.38
Control	30	2	15	13	56.67

3 Discussion

IBS is one of the most common intermittent or durative functional gastrointestinal disorders characterized by abdominal discomfort or pain and alterations in bowel habits. With increasing prevalence, irritable bowel syndrome is becoming a global disease. Due to the lack of effective treatment for the multiple symptoms of IBS, patients suffering from IBS experience a low quality of life, work absenteeism and suffer from severe pain sometimes for more than ten years. As a result, IBS contributes significantly to a tremendous economic strain on the health care system[7,8], and is receiving more and more attention. Now, IBS is a typical disorder of a social-psycho-biological pattern, with a variety of factors contributing to its onset. While its pathological factors and pathogenesis are still not clear, it is necessary to start an epidemiological study aimed at discovering some clues for further elucidation.

The investigations of IBS had already been taken abroad. Heaton[9], et al. and Jones[10], et al. carried out questionnaire interviews to find out the prevalence rate of IBS among adults in two separate places in Britain, according to the records provided by family doctors. The sample number was 2000 and its results showed the proportion of subjects with IBS was 14.7% and 21.6% respectively according to Manning and Rome Ⅱ criteria, male to female ratio was 5:13. Danivat[11], et al. researched 676 employees from a big hotel in Bangkok as well as 401 adult farmers in the countryside 300 KM away from the city and discovered the prevalence rate of IBS was 4.3% and 5.7% respectively, according to Manning and Rome Ⅱ criteria. These surveys, however, were carried out without randomized design.

Based on a randomized clustered sampling method, this study took a questionnaire interview amongst 1,685 subjects aged 18-80 in the community of Shanghai. It revealed that IBS was a common disease in Shanghai and its prevalence rate was 11.45% and 5.04% according to Manning and Rome criteria respectively, and only 25.91% of the sufferers had visited doctors. According to the survey, the following factors were the main cause: firstly, due to lack of understanding and basic IBS education; secondly, the current management of IBS remains unsatisfactory[12,13].

Acupuncture therapy has a long history and rich clinical experience in treating IBS[14]. The ancient traditional Chinese medical books also have many records related to "diarrhea", "abdominal pain", et al. which are similar to IBS, and Tianshu (ST 25) is commonly used in treating IBS. Previous studies indicated that acupuncture represented a potentially valuable therapeutic remedy for the treatment of IBS[15-17]. In this research, multiple symptoms of D-IBS could be improved by EA on Tianshu (ST 25) and its therapeutic effect was superior to EA on Daheng (SP 15), also verifying verified that acupuncture was quite effective in treating patients with IBS.

As a result, it was suggested that an improvement in public education of IBS should be investigated, in order to discover its mechanism and the best method of management. Plenty of evidence showed that traditional Chinese medicine, especially acupuncture-moxibustion therapy, has a notable advantage in treating IBS over Western medicine. Moreover, this therapy is known to be simple, convenient, cost-effective, non-toxic with no side effects, benefiting both the individual patient as well

as society as a whole in terms of reducing health-care costs, saving medical resources and enhancing the development of acupuncture.

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● Related Link ●

Probiotic Treatment of Irritable Bowel Syndrome in Children

Treatment of functional bowel disorders of irritable bowel-type (IBS) in children remains a difficult task because of a lack of drugs with low adverse event profile. We here report the results of a treatment study in 203 children (66 boys and 137 girls) age 4 to 18 years (mean: 10.5±4.5 years) with typical IBS symptoms with abdominal pain and either predominant diarrhea (*n*=50), constipation (*n*=56), alternating stool frequency (*n*=28) or unspecific pain (*n*=69). The average duration of symptoms prior to therapy was 175 days. Most (95%) patients up to age 11 were treated with a daily dose of 10 drops of Symbioflor 2 (SF2) (SymbioPharm, Herborn) (cells and autolysate of 1.5-4.5x10(7) CFU of bacteria of Escherichia coli type), in the elder children 77% received this dosage, while the remaining received a higher dose up to 30 drops/day. Treatment lasted 43 days on average. All patients tolerated the treatment well and without adverse events. The key IBS symptoms (abdominal pain, stool frequency) as well as the other symptoms (bloating, mucous and blood in stool, need for straining at stools, urge to defecate) improved significantly during treatment. Global assessment of therapy by parents and doctors was altogether positive. In summary these data confirm efficacy and tolerability of this probiotic compound in children and adolescents and supplement published data of probiotic IBS therapy in adults

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