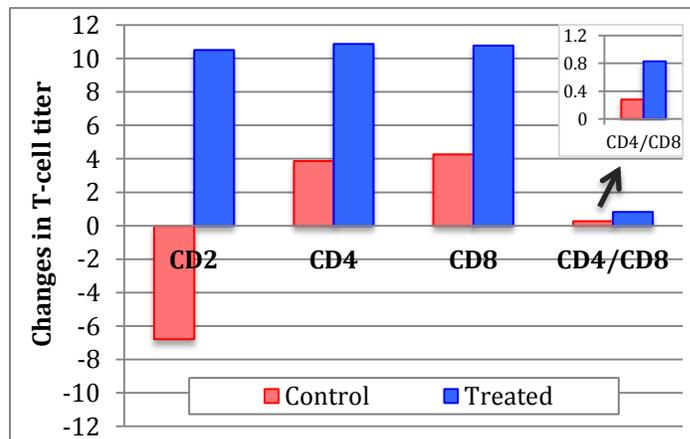


Infrasonic Treatment of Asthma

*Su Cheng Wu, Department of Pediatrics, The First Affiliated Hospital
Guangxi Medical University, Nanning, Guangxi, China*

Summary

Child bronchial asthma is a common asthmatic disease with high incidence in pediatrics that can influence the child's development. To evaluate the effectiveness of the Infrasonic® therapy 50 cases of child bronchial asthma were treated with the Infrasonic device plus routine drugs. A control group of 15 cases was only treated with routine drugs. Respiratory symptoms and lymphocyte subpopulation (CD2, CD4, CD8, CD4/CD8) of peripheral blood were measured. The results showed that the symptoms of the group treated with the Infrasonic device and meds improved with a higher percentage (94%) than the symptoms of the group of children treated only with meds (80%). The T-lymphocyte population titer in peripheral blood also showed a higher increase in the group treated with the Infrasonic therapeutic device.



Changes in the T-Lymphocytes titer after treatment. T-lymphocytes were measure from peripheral blood using the bridge ligase labeled method. Calculations were made subtracting the values *after* treatment minus *before* treatment. The blue columns represent the Infrasonic plus meds treated group. The red columns represent the control group treated only with meds.

Introduction.

Child bronchial asthma, a common asthmatic disease with higher incidence in recent years in pediatrics, can influence the child's development. Asthma is a chronic inflammatory disease of the airways associated with airway hyper responsiveness (AHR), coupled with wheezing, breathlessness, chest tightening, and coughing. Characteristically, the obstruction of the airways is reversible, either spontaneously or with treatment. Major cellular components driving asthmatic reactions include mast cells, eosinophils, and T cells, with a prominent role for CD4 Th2 cells.

Many human organs have resonance frequency in the range of infrasound. The Infratonic device is an infra-audible instrument that combines modern electronics with traditional Chinese medicine, with a function similar to that of the outgoing Qi [8], with main peak frequency of 8-14Hz, and sound intensity of 70-90 dB [2]. In traditional Chinese medicine the outgoing Qi has the following indications: dredging the channels, regulating the function among the zang and fu, promoting vital energy and blood circulation, improving immunologic function.

Based on the feature of child bronchial asthma and zang and fu, channels and collaterals, Qi and blood of traditional Chinese medicine, the Infratonic device is used for treatment of child bronchial asthma in combination with the drug paroxysmal. The asthma symptoms were compared before/after treatment. T-cells were also analyzed using a test of reproduction rate of T-lymphocyte subpopulation (CD2, CD4, CD8, and CD4/CD8) of peripheral blood to observe the clinical effect of sub-audible outgoing Qi treatment on raising immunity of organism.

Material and Methods.

Subjects. Children were selected from the First Affiliated Hospital based on the diagnostic criteria of child asthma and infantile asthmatic bronchitis of Chengdu Conference in 1987 [1]. The treatment group consisted of 50 children, 27 males and 23 females, ages between 1 to 14 years old. The control group consisted of 15 children, 4 males and 11 females, ages between 1 to 12 years old.

Treatment. All subjects (65 children) were treated with the drug paroxysmal. The group of 65 children was divided in two subgroups: a) The Infratonic treated group of 50 cases, and b) the control group of 15 cases. The Infratonic instrument was offered by SoundVitality/Infratonic Inc., in San Juan Capistrano, CA, U.S.A.

The treatment was based on the features of child bronchial asthma and on the dialectical therapeutics of traditional Chinese medicine. Four points were treated, and the measures were made in cun units. Cun is a Chinese traditional unit of length. One cun is the width of a person's thumb at the knuckle. Treated points: 1) *Dingchuan*, located on the back, 0.5 cun lateral to the lower border of the spinous process of the 7th cervical vertebra. The indication for this point is to facilitate the flow of lung-Qi to relieve asthma. 2) *Feishu*, located on 1.5 cun lateral to the lower border of the spinous process of the 3rd thoracic vertebra. Indication for this point is to facilitate the flow of the lung-Qi to resolve cough. 3) *Tiantu*, located on the neck, on the anterior midline, in the center of the suprasternal fossa. Indications for this point is to release cough, asthma, chest pain and so on. 4) *Danzhong*, located on the chest, on the anterior midline, on the level of the 4th intercostal space, on the midpoint of the line connecting the two nipples. Indications for this point is to check upward adverse flow of the lung or the stomach-Qi. The 4 points were treated each morning for 5-10 minutes during a course of 5 days.

Symptoms analysis. Based on the Amendment of Criterion of Therapeutic Effect [3], we grouped the symptoms in four grades: 1) *Clinical controlled*: an entire remission for asthma symptom. Even if occasionally a mild attack is occurred, it can be remitted without taking any medicine. 2) *Obviously curative*: asthma attack is more obviously relieved than before treatment within a short time. 3) *Improvement*: some abatement. 4) *Inefficacy*: the symptoms, signs and reproduction rate of T-lymphocyte subpopulation are unimproved or exacerbated.

Blood analysis. All subjects were tested for T-lymphocyte subpopulation of peripheral blood. Children were not taking any hormone. The Kit anti-human T-lymphocyte subpopulation monoclonal antibody APAAP bridge ligase labeled method was used to quantify the cells (manufactured by the Biological Development

Center of Military Medical Science Institute of China). Based on the instructions on the Kit, the T-lymphocytes subpopulation, CD2, CD4 and CD8 were quantified. Changes on the titer of the T-lymphocytes in the two groups before/after treatment were analyzed. Chi-squared (X^2) test distribution was used to determine if the results were statistically significant.

Results

Therapeutic symptoms. The evaluations of the therapeutic effects showed that the treatment group has a total effective improvement of symptoms of 94% (Table #1, Figure #1). Although the control group also had a great improvement of symptoms it was 14% lower than the Infratonic treated group (Table #1, Figure #1). Statistic analysis using Chi-squared (X^2) test distribution showed that there is a more obvious therapeutic effect in the treatment group than in the control group ($P < 0.01$). The results show that clinical symptoms of wheezing, coughing and asthma caused by infection of the upper respiratory tract are relieved faster and to a greater degree when using the Infratonic device.

	Infratonic Treated Group		Control Group	
	Number of cases	Percentage	Number of cases	Percentage
Clinically Controlled	26	52	6	40
Obviously Curative	12	24	3	20
Improved	9	18	3	20
No Changes	3	6	3	20
Total	50	-	15	-
Total improvements	47	94	12	80

TABLE #1. Percentage improvement of asthma symptoms. Left panel, group of children that were treated with the Infratonic plus the drug paroxysmal. Right panel, control group children only treated with paroxysmal.

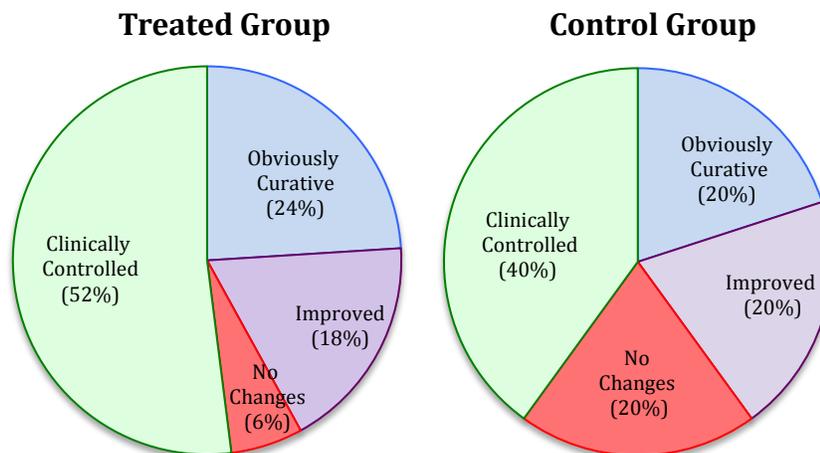


FIGURE #1. Pie Charts showing changes in percentages of Asthma symptoms after treatment. The left pie chart represents the group of subjects that were treated with the Infratonic device plus medicine. The right pie chart represents the group of children that was treated only with medicines.

Evaluation of T-lymphocytes subpopulation in peripheral blood. Statistic analysis of Chi-squared (X^2) distribution index was used to evaluate the differences of T-lymphocyte subpopulation between before and after treatments. In the treated group, the titer of all sub-populations of T-cells analyzed (CD2, CD4, CD8, CD4/CD8) increased after treatment showing a great statistical significant difference ($P < 0.01$), **Figure #2 and Table #2**. On the other hand, the control group showed a decrease in the CD2 subpopulation after treatment but the difference was not statistically significant ($P > 0.05$), indicating a not real change. The rest of the T-cell subpopulation from the control group (CD4, CD8 and CD4/CD8) increased their titer and those differences were statistically significant ($P < 0.05$), but in a lesser degree than the group treated with the Infracronic where $P < 0.01$, **Table #2, Figure #2**.

	Infracronic Treated Group		Control Group	
	Before	After	Before	After
CD2	57.06	67.58	66.06	59.27
CD4	32	42.88	31.93	35.8
CD8	26.66	37.44	24.8	29.07
CD4/CD8	0.58	1.41	0.93	1.21

TABLE #2. Titer average of T-Lymphocyte subpopulations. Left, Infracronic plus medicine treated group before and after treatment. Right, only medicine treated group (control) before and after treatment.

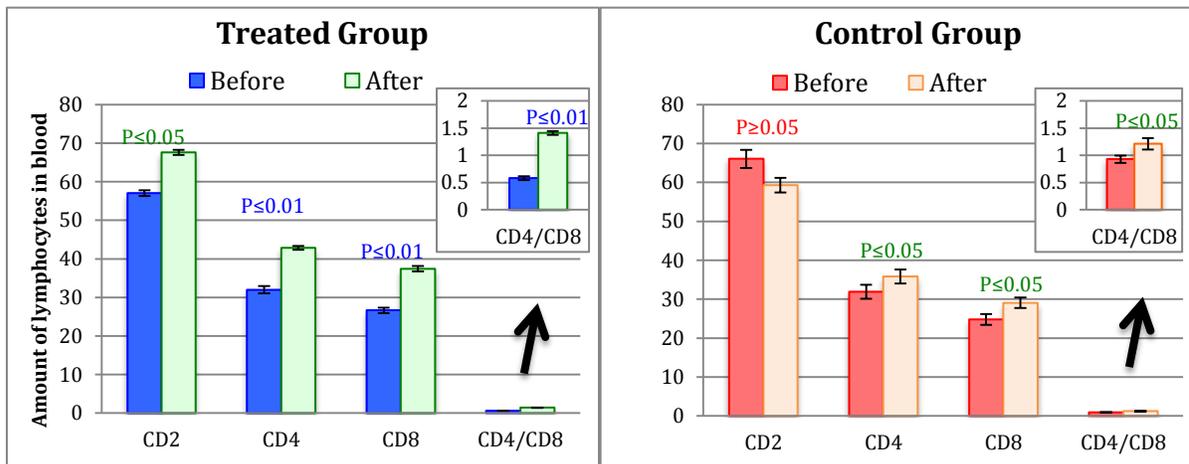


Figure #2. T-Lymphocytes subpopulations titers. T-lymphocytes were measured from peripheral blood using the bridge ligase labeled method. The group of children treated with the Infracronic plus meds is in the left graph, columns in blue and green are the values before and after treatment, respectively. The control group was treated only with meds (right graph), columns in red and light orange represent the results before and after treatment, respectively. X^2 statistic test analysis indicates a higher statistical significance in the Infracronic treated group.

Comparing changes in the levels of T-cell populations shows that CD4, CD8 and the ratio CD4/CD8 increased in both groups after treatment, but the changes were more pronounced in the group that was treated with the Infracronic, **Figure #3**. The decrease in CD2 subpopulation in the

control group was not statistical significant ($P>0.05$), the rest of the T-cell measurements were statistically significant, see also **Figure #2**.

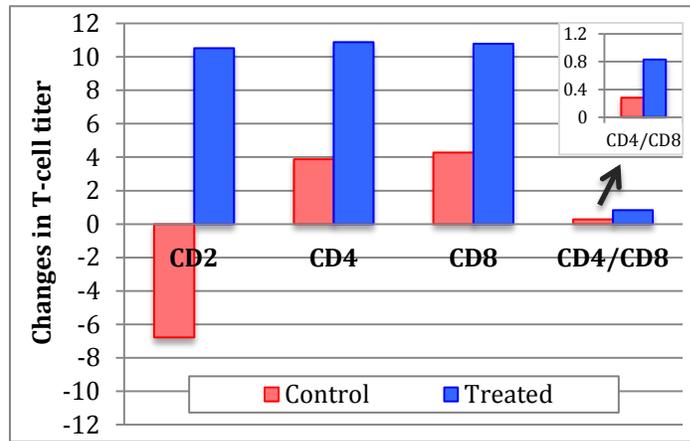


Figure #3. Changes in the T-Lymphocytes titer after treatment. T-lymphocytes were measure from peripheral blood using the bridge ligase labeled method. Calculations were made subtracting the values *after* treatment minus *before* treatment. The blue columns represent the **Infratonic** plus meds treated group. The red columns represent the control group treated only with meds.

Testing of peripheral blood showed that the reproduction rate of T-Lymphocytes subpopulation in Infratonic treatment group is greater than those receiving routine treatment, indicating increased level of immunologic function of human cells. The Infratonic reduces the course of treatment without discomfort or side-effects. Its biological mechanism of action should be explored in the future.

Discussion

In recent years, there has been much study on the pathogenesis of child bronchial asthma, in which many reports are about cellular immunity of asthma in particular the relationship between asthma and T-lymphocyte subpopulation [4, 5]. At present, most research workers consider that child bronchial asthma is in close relationship with viral respiratory tract infection, also an IgE rising would cause a type-1 allergic reaction. The synthesis of IgE depends on the coordination of T and B-lymphocytes. But T-helper lymphocytes and suppressor T-lymphocytes may have an important effect on IgE reaction [6]. Some of the important actions of T-cell function in cellular immunity are antiviral, antitumor and the control or regulation of the immune system. It is important to keep in mind that T-lymphocyte subpopulation has the function of regulating the immune system. Under normal circumstances, there is an antagonistic balance among T-lymphocyte subpopulations. Under abnormal circumstances a change from any side would cause a disorder in the immune mechanism so as to cause clinical symptom, such as laryngeal itching, tussiculation of infection of the upper respiratory tract, with tiredness, chilly, headache and low fever, etc, sometimes wheeze, often no special signs, and under these circumstances changes of T-

lymphocyte subpopulations can be determined. In traditional Chinese medicine the combination of these symptoms with changes in the T-cell populations is named asthma [7].

Many human organs have resonance frequency in the range of infrasound. The **Infratonic** is an infra-audible instrument that combines modern electronics with traditional Chinese medicine, with a function similar to that of the outgoing Qi [8]. In traditional Chinese medicine the outgoing Qi has the following indications: dredging the channels, regulating the function among the zang and fu, promoting vital energy and blood circulation, and improving immunologic function. A satisfactory result has been achieved in the cure of child bronchial asthma by the infra-audible **Infratonic** instrument. In this study, clinical symptoms of pediatric patients of 94% have been improved in which the improvement of wheeze, cough and asthma caused by infection of the upper respiratory tract are more obvious. Testing of peripheral blood showed that the reproduction rate of T lymphocytes subpopulation in treatment group is greater than those receiving routine treatment. This increased in reproduction rate indicates increased level of immunologic function of human cells. It is thus obvious that the treatment with the sub-audible outgoing Qi instrument has certain material grounds. It serves the function of reducing the course of treatment without side effects. It is painless, with no adverse reaction and is comfortable. As for its mechanism of action medical biology should be explored in the future.

References:

1. Hua Yunhan and Chen Yuzhi. Diagnosis and Classified Criteria of Bronchial Asthma. Chinese Journal of Pediatrics. 1988, 26(1): 41
2. Niu Xin and Liu Guolong. Brain wave analysis of Qigong outgoing Qi effect. ACTA Medica Sinica. 1989, 4(1): 11
3. Definition, diagnosis, classified of state of illness and criterion of therapeutical effect in bronchial asthma. Chinese Journal of Tuberculosis and Respiratory Diseases. 1993, 16(Asthma supplement): 5
4. Chief editor Sun HuiQin. Child Bronchial Asthma. People's Health Publishing House, Beijing. 1990:20-56
5. Shi Xiaodong. Child asthma and testing of T lymphocyte subpopulation of asthmatic bronchitics. The Journal of Clinical Pediatrics. 1991, 9(1):1
6. Nong Guangmin and Xie Xiangzhi. Child asthma and testing of T lymphocyte subpopulation of asthmatic bronchitics. Acta of Guangxi Medical College 1993, 10(2):174
7. Chief editor He ShaoQi. Modern Traditional Chinese Medicine Internal Medicine. China Medicine Science Publishing House, Beijing. 1991:197-208
8. Yi Jinghong, Zhao Mincai, and Li Daochong, et al. Qigong outgoing Qi effect on reproduction rate of human T lymphocyte subpopulation. Acta Medica Sinica. 1998, 3(6):11