Prof. ZHANG Yi’s Experience in Treating Severe Arrhythmia

CHEN Wei-guo 陈卫国 & BA Zhuo-ma 巴卓玛
Qinghai Provincial Hospital of Traditional Chinese Medicine, Xining, Qinghai 810007, China

Prof. ZHANG Yi is a supervisor in the work of inheriting the experiences from national TCM experts, and enjoys special subsidy granted by the State Council. Graduated from Tongji Medical College, Prof. ZHANG has been engaged in medical work for about 50 years, and has worked for many years as the director of the Department of Internal Cardiology in the Affiliated Hospital of Qinghai Medical College. Later, he studied Chinese medicine, and has been engaged in the clinical work of combined western and Chinese medicine since then. Prof. ZHANG has a profound study of TCM classics through the ages. He is good at drawing the merits of scholars of different schools, and is conversant with knowledge of the past and the present. In clinical practice, he holds the ZHANG Zhong-jing’s doctrine in esteem.

**Zhi Gancao Tang** (炙甘草汤 Decoction of Prepared Licorice) is the formula noted in *Shang Han Lun* (伤寒论 TREATISE ON FEBRILE DISEASES) for treating febrile disease with knotted intermittent pulse, and severe palpitation, with the pathogenesis of deficiency of both the heart-yin and heart-yang. This formula has the effect of activating yang and restoring the normal pulse, and nourishing yin and blood. In the formula, Zhi Gan Cao (炙甘草 Radix Glycyrrhizae) is used for strengthening the middle-jiao and replenishing qi, with Ren Shen (人参 Radix Ginseng) and Da Zao (大枣 Fructus Jujubae) added for strengthening qi in the middle-jiao and promoting the produce of blood and restoration of normal pulse; Sheng Di Huang (生地黄 Radix Rehmanniae), Mai Dong (麦冬 Radix Ophiopogonis), E Jiao (阿胶 Colla Corii Asini) and Ma Ren (麻仁 Fructus Cannalis) can give the effects of nourishing the heart-yin and tonifying heart-blood to enrich the blood vessels; and Gui Zhi (桂枝 Ramulus Cinnamomi) and Sheng Jiang (生姜 Rhizoma Zingiberis Recens) can warm and activate the heart-yang. The combined use of all the above herbs can yield the effect of strengthening yang and nourishing yin at the same time. Prof. ZHANG thinks that the disease-location of severe palpitation is in the heart, which is the subjective symptom of the patient due to discomfort of the heart, but not simply the sensation of palpitation. If the ‘knotted intermittent pulse’ is just thought as the irregularity of the pulse, and further thought as atrial fibrillation and premature atrial beat, the indications of this formula would be limited. As a matter of fact, according to the TCM knowledge of ‘the heart dominating the blood circulation and vessels’, ‘the knotted intermittent pulse’ should be understood as the manifestation of dysfunction of the heart, including the arrhythmia, not just limited in the regularity of pulse rhythm. Therefore, the modified prescriptions of this formula based on differentiation of symptoms and signs have a wide range of application.

**Bradycardia**

1. Viral myocarditis complicated with sick sinus syndrome:

   A female patient, 28 years old, complained that after a common cold, she got the symptoms of palpitation, oppressed feeling in the chest, general weakness, and coldness of the four limbs, and she had syncope once at home. She was then hospitalized to receive related examinations. The dynamic cardiogram showed nodal rhythm in 24 hours, the longest R-R interval 3 seconds, the total heart beats in 24 hours only over 60 thousands, and with a rise of myocardial zymogram.
She was then diagnosed to have viral myocarditis (severe), and sick sinus syndrome. On the basis of western medical treatments, she was recommended to be treated by pacemaker. Unable to afford the high expense, she came to Prof. ZHANG for TCM treatment. At the moment, the patient had palpitation with slow but regular pulse, accompanied by general weakness, coldness of the four limbs, pale complexion, and pale tongue with white coating, the signs indicating yang insufficiency and deficiency of yin and blood. The treating principle was recuperating yang to restore normal pulse, and nourishing blood to tranquilize the mind. The modified Zhi Gancao Tang (炙甘草汤 Decoction of Prepared Licorice) was used, containing Zhi Gan Cao (炙甘草 Radix Glycyrrhizae Preparata) 18g, Ren Shen (人参 Radix Ginseng) 15g (not to use Radix Codonopsis instead), Gui Zhi (桂枝 Ramulus Cinnamomi) 15g, Mai Dong (麦冬 Radix Ophiopogonis) 20g, Sheng Di Huang (生地黄 Radix Rehmanniae) 20g, E Jiao (阿胶 Colla Corii Asini) 10g, Ma Ren (麻仁 Fructus Cannalis) 10g, Sheng Jiang (生姜 Rhizoma Zingiberis Recens) 10g, 10 grains of Da Zao (大枣 Fructus Jujubae), Zhi Fu Zi (制附子 Radix Aconiti Preparata) 15g (decocted first), and 25 ml of white spirit. After taking 15 doses of the above prescription, the patient felt the symptoms obviously improved, with no recurrence of syncope. The reexamination by dynamic cardiogram showed mostly sinus rhythm within 24 hours, the longest R-R interval 1.5 seconds, and the total heart beats within 24 hours over 90 thousands. Then, the patient was discharged from the hospital, with no recurrence in a 6-month follow-up.

2. Coronary atherosclerotic cardiopathy, with atrioventricular block degree II and type II:
A male patient, 63 years old, had coronary atherosclerotic cardiopathy for 5 years, accompanied with worsened oppressed feeling in the chest, shortness of breath, and general weakness. The ECG didn’t show the signs of atrioventricular block degree II and type II, and the heart rate was 70–80 beats/per minute. Because of unwilling to take the pacemaker, the patient consulted Prof. ZHANG. At the moment, the patient complained of oppressed feeling in the chest and shortness of breath, but without the sensation of palpitation. Prof. ZHANG thought that although the patient had no palpitation, the oppressed feeling in the chest, shortness of breath and the irregular pulse were really the signs of heart dysfunction; and the patient’s dark purple tongue proper, the atrioventricular block and the left bundle branch block were the results of obstruction of the heart channel by stagnation of phlegm and blood stasis. Therefore, the herbs for resolving phlegm and removing blood stasis should be added. The herbs prescribed were Zhi Gan Cao (炙甘草 Radix Glycyrrhizae Preparata) 18g, Ren Shen (人参 Radix Ginseng) 15g, Gui Zhi (桂枝 Ramulus Cinnamomi) 15g, Mai Dong (麥冬 Radix Ophiopogonis) 20g, Sheng Di Huang (生地黄 Radix Rehmanniae) 20g, E Jiao (阿胶 Colla Corii Asini) 10g, Ma Ren (麻仁 Fructus Cannalis) 10g, Sheng Jiang (生姜 Rhizoma Zingiberis Recens) 10g, 10 grains of Da Zao (大枣 Fructus Jujubae), Ban Xia (半夏 Rhizoma Pinelliae) 15g, Zhi Qiao (枳壳 Fructus Aurantii) 12g, Pu Huang (蒲黄 Pollen Typhae) 10g, Hong Hua (红花 Flos Carthami) 8g, Di Long (地龙 Lumbricus) 10g, and Quan Xie (全蝎 Scorpio) 10g. After taking 10 doses of the above prescription, the patient felt improvement of oppressed feeling in the chest, but still had shortness of breath and general weakness. 30 g of Huang Qi (黃芪 Radix Astragali) was then added to the original prescription, 10 doses were taken in succession. On his return visit, the patient felt that the symptoms were much improved. The ECG reexamination showed sinus rhythm, 72 beats/per minute, and without the signs of atrioventricular block degree II and type II.

Tachycardia

1. Coronary atherosclerotic cardiopathy with frequent ventricular premature beats and paroxysmal ventricular tachyrhythmia:
A male patient, 65 years old, had coronary ather-
osclerotic cardiopathy for about 7 years. Because of aggravated palpitation and transient amaurosis, he received dynamic ECG examination in a special cardiovascular hospital, which showed 7285 ventricular premature beats in the 24 hours, with 3 times of paroxysmal ventricular tachyarrhythmia. He was hospitalized right away, and the information of critical condition was sent out. The symptoms were improved after treatment with amiodarone, and the ECG reexamination was basically normal. After being discharged from the hospital, the patient was asked to continue the oral administration of amiodarone for half a year. But the following examinations in the special hospital showed hypothyroidism, mild pulmonary fibrosis, and moderate damage of pulmonary function, when he was asked to stop the medication of amiodarone immediately. However, after the drop of medication, the patient got recurrence of palpitation, with occasional attacks of amaurosis. The reexamination of dynamic ECG showed: frequent occurrence of ventricular premature beat, totaling 2263 times, and one re-attack of paroxysmal ventricular tachyarrhythmia. The patient then refused medication of western medicine, and came to Prof. ZHANG for TCM treatment. At the moment, the patient had obvious palpitation, and knotted irregular pulse, accompanied with irritability and peevishness, red tongue proper with yellow-dry coating, and constipation, which were all signs indicating liver depression with interior heat. The prescription: Zhi Gan Cao (*Radix Glycyrrhizae Preparata*) 18g, Ren Shen (*Radix Jinseng*) 15g, Gui Zhi (*Radix Cinnamomi*) 15g, Mai Dong (*Ramulus Cinnamomi*) 15g, Sheng Di Huang (*Radix Rehmanniae*) 20g, E Jiao (*Colla Corii Asini*) 10g, Ma Ren (*Fructus Cannalis*) 10g, Sheng Jiang (*Radix Zingiberis Recens*) 10g, 10 grains of Da Zao (*Fructus Jujubae*), Chai Hu (*Radix Bupleuri*) 16g, Bai Shao (*Radix Paeoniae Alba*) 12g, and Sheng Da Huang (*Radix et Rhizoma Rhei*) 10g. 10 doses of the above prescription were taken in succession. The patient’s symptoms of palpitation and irritability were alleviated, but he got diarrhea. Then, Da Huang (*Radix et Rhizoma Rhei*), Mai Dong (*Radix Ophiopogonis*), E Jiao (*Colla Corii Asini*), Ma Ren (*Fructus Cannalis*) were left out from the prescription, and Chao Bai Zhu (*Fructus Jujubae*), Huang Lian (*Rhizoma Coptidis*) 15g, Fu Ling (*Poria*) 10g, and Yuan Zhi (*Radix Polygalae*) 10g were added. 10 doses of the above prescription were taken, and all the symptoms were obviously improved. The reexamination of dynamic ECG showed: the total ventricular premature beats were 121 within 24 hours, with no occurrence of paroxysmal ventricular tachyarrhythmia. In this period, the patient didn’t take any anti-arrhythmia western medicine. After being discharged from the hospital, the patient was prescribed another 20 doses of the above herbal prescription, and was asked to take the western medicine of betaloc. The follow-up survey for half a year showed no recurrence.

2. Paroxysmal supraventricular tachycardia:

A female patient, aged 41 years, had paroxysmal supraventricular tachycardia for 7 years. She had been treated by physiotherapy and western medication of verapamil and propafenone, but she was still suffered from repeated attacks of the problem. The patient refused to receive treatment by radiofrequency catheter ablation (RFCA). In the recent 2 years, she had frequent recurrences upon overwork or emotional disturbance, accompanied with obvious palpitation, dream-disturbed sleep, weak-rapid pulse, and red tongue proper with yellow coating. She was then treated with *Zhi Gan Cao Tang* (*Decoction of prepared Licorice*), added with herbs for removing heat and tranquilization, such as Huang Lian (*Rhizoma Coptidis*) 10g, Zhu Ru (*Caulis Bambusae in Taeniam*) 10g, and Ci Shi (*Magnetitum*) 20g. She had taken 30 doses of the above prescription. On her return visit several months later, she reported no recurrence of supraventricular tachycardia.
3. Pulmonary heart disease complicated with rapid atrial fibrillation:

A male patient, 68 years old, had pulmonary heart disease for 4 years. Recently he had aggravation of cough with dyspnea, edema of the lower limbs for one week, accompanied with palpitation, and cyanosis of the lips. He was hospitalized, and the ECG examination showed rapid atrial fibrillation, the ventricular rate 130 times/per minute. The patient stated that when he was treated in other hospital half a year before, the atrial fibrillation did not occur. When he was hospitalized in the authors’ hospital, the examinations showed: pulmonary fibrosis, hypoxemia, and bronchial wheeze found by auscultation at both lungs. After expectant treatment for 3 days, the patient’s cough with dyspnea and edema were all alleviated, and pulmonary wheeze decreased, but palpitation still existed. The auscultation found atrial fibrillation, the ventricular rate 120 times/per minute. The patient was contraindicated to the commonly-used medicines of betaloc and amiodarone. Since he had obvious hypoxemia, and digitalis was easy to cause intoxication, the patient came to Prof. ZHANG for TCM treatment. At the moment, the patient had palpitation with knotted intermittent pulse, the indications of Zhi Gan Cao Tang (炙甘草汤 Decoction of prepared Licorice), accompanied with edema, and cough with dyspnea, which were the signs of water-overflowing due to yang-insufficiency, giving upward attack to the heart and lung. Therefore, Zhi Fu Zi (制附子 Radix Aconiti Preparata) 15g (decoced first), Fu Ling (茯苓 Poria) 10g, and Chao Bai Zhu (炒白术 parched Rhizoma Atractylodis Macrocephalae) 15g were added to Zhi Gan Cao Tang (炙甘草汤 Decoction of prepared Licorice). For the patient’s symptom of cyanosis, the sign of blood stasis, Hong Hua (红花 Flos Carthami) 10g and Dan Shen (丹参 Radix Salviae Miltiorrhizae) 15g were added. After taking 6 doses of the above prescription, the palpitation and cough with dyspnea were obviously improved. The reexamination by ECG showed the ventricular rate 80 times/per minute.

Summary

The prescription of Zhi Gan Cao Tang (炙甘草汤 Decoction of prepared Licorice) is made for the syndrome of both yin and yang deficiency of the Heart, with the effects of tonifying yin and nourishing blood, activating yang and restoring normal pulse, and evenly tonifying yin and yang. However, in clinical practice, the symptoms may vary greatly. The heart rate may be slow or fast; and the symptoms may belong to the cold or heat, excess or deficiency syndrome. Therefore, the treatment should be based on syndrome-differentiation. We can learn from the above sample cases. The two patients with bradycardia needed to carry pacemaker. Their TCM differentiations were different, one due to insufficiency of yang-qi should be treated based on the principle of restoring yang from collapse; while the other due to obstruction of collaterals by phlegm and blood stasis should be treated based on the principle of resolving phlegm, promoting circulation of blood and dredging the collaterals. However, they used the same prescription of Zhi Gan Cao Tang (炙甘草汤 Decoction of prepared Licorice) with different modifications, and both of them got quite good therapeutic effects. We can also learn from the other three cases of tachycardia. Based on western medical analyses, the 3 patients had different etiology, clinical manifestations, and ECG findings. However, they were treated with the same prescription of Zhi Gan Cao Tang (炙甘草汤 Decoction of prepared Licorice), with modifications made according to the different accompanying symptoms. As a result, all of the three patients got marked therapeutic effects.

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