

THE MODERN SCIENTIFIC RESEARCH ON THE THEORY OF TRADITIONAL CHINESE MEDICINE

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ABSTRACT: Traditional Chinese Medicine, unlike in many countries, with its well defined concepts and content, is developed due to the progressive policies of the government. The past 30 years work on scientific lines complemented by the successful and significant efforts to integrate Traditional Chinese Medicine with Western medicine has proved the scientific essence of the theory of this system. Added to this are the social acceptability, relevance, and effectiveness. This brief review of some of the major work done indicates the bright future it has in contributing to the improvement of the health of the world.

Traditional Chinese Medicine (TCM) has a long history. It makes a great contribution to the prosperity of the Chinese nation. Since Western Medicine entered China 140 years ago, TCM was defied and vigorously lashed by the Western Medicine. It was discriminated and excluded. In 1929, during the reign of Guomintang, its central government passed a bill: "To Ban the Traditional Medicine in order to Clear the way for Developing the Medicine". But because of the wide objection, the Bill had not been realized. TCM not only did not decline and wither gradually, or even exterminated like traditional medicine of some other countries, but was preserved tenaciously.

Why? There are three reasons:

Firstly people in the vast rural areas as well as in many cities, whether common people or upper class, all believed in TCM earnestly.

Secondly, treatment with TCM yield quite satisfactory results, not only reduce the symptoms, but also cure some diseases. Effectiveness is one of the reasons of the people's support. Besides, Chinese medicinal herbs are cheap, simple and easy to

use, rich in resource, and with very few side-effects. Therefore it is welcomed by the vast population till now.

But these two reasons alone are not enough, it can hardly compete with Western Medicine. The history of traditional medicine of many countries proves it.

Thirdly, TCM doctor treats patients not merely by experience, but also by a unique theoretical system. We can neither explain this theoretical system clearly with modern sciences, nor substitute it for the theoretical system of Western Medicine. Moreover under the guidance of this theoretical system, TCM doctors can cure some diseases intractable to Western Medicine. Therefore, before Liberation, although it was discriminated and excluded, but owing to its full vitality, it has not been exterminated at any time.

After the founding of the People's Republic of China, a fourth reason is added:

That is, the protection by the policy of TCM. TCM is energetically encouraged by the government. Therefore in the recent

30 years, the cause of TCM has had a great development. TCM doctors have obtained legal position, their social status and academic position have been raised. 280,000 TCM doctors entered medical institutions (hospitals, medical schools, research institutes). 552 TCM hospitals, and 24 TCM colleges have been set up, there are 18,000 students studying in these colleges. 500 TCM pharmaceutical factories manufacture different kinds of TCM drugs to serve the clinical use. Academy of TCM and provincial institutes of TCM are being established to integrate TCM with Western Medicine. The achievements of research of TCM emerge in large numbers, such as: to treat malaria with Qinghaosu, especially cerebral and chloroquine-resistant malaria; to treat bronchitis with *Vitex negundo*; to treat coronary heart disease with Coronary Heart No. II; to treat chronic granulocytic leukemia with Indirubin; to treat pulmonary cancer with extract of *Polypus umbellatus*; to treat extrauterine gestation with Extrauterine Gestation No. II, to treat cholelithiasis with Calculus Expelling decoction; to treat acute abdomen with "Clearing the Internal Organ with Purgative" recipes; to prevent the ABO neonatal hemolytic anemia with "Replenishing the Vital Energy and Promoting the Blood Circulation" recipes; to treat scleroderma and keloid with Tongmailin; to treat third degree internal hemorrhoids with Xiaozhiling, etc. And there are many efficacious non-medical therapy, such as acupunctural anesthesia for surgical operation; to treat dysentery with acupuncture; to treat cataract with needle couching and netting; to correct the fetal position with acupuncture; and Breathing Exercise therapy; Chiropractic therapy; Cupping therapy and orthopedic massage etc.

Moreover, as the cause of TCM develops, there appear three kinds of doctors—TCM doctor, Western trained doctor, doctor with both training. Their co-existence and development has been confirmed. Such a situation can hardly be seen in the world.

Since the theoretical system of TCM is summed up from the clinical practice and can be used to cure some diseases, there

must be certain scientific essence in it. It is worthwhile for further investigation, especially with modern scientific technology and method, to systematize and elucidate these scientific essences, to enrich and develop modern medicine. It is not only possible, but is entirely necessary.

What are the contents of this theoretical system? How many parts does it consist of?

Briefly, they are: Yin Yang, Five Elements, Viscera and Bowels, Channels, Vital Energy and Blood, Three Pathogenic Factors, Four Diagnostic Measures, Eight Cardinal Syndromes, Eight Treating principles, Ten kinds of Recipes, Four Properties, Five Tastes, Ascending and Descending, Floating and Sinking, and Channel-trophic Property of medicinal herbs.

In this system, the theory of Ying Yang and Five Elements are guiding theory. It guides the application of other theories of TCM. The human body is composed of five Viscera, six Bowels and other tissues, with Channels as its connection to the whole body. The blood and Vital energy circulate within the channels. When one falls ill, the Ying Yang loses their balance. Using the four Diagnostic Measures (observation, Auscultation and smelling, Interrogation, Pulse Feeling) and finding out the pathogenic factor, the site of lesion and the mechanism of disease lead the TCM doctor to differentiate the Syndrome as a whole. Then in accord with the procedure of "Theory, Treating Principle, Recipe and Medicinal Herbs", they select the corresponding treating principle, recipe and herbs. This is called "Treat the Patient according to Syndrome Differentiation." This is how the TCM doctor treat patients and hence the therapeutic effect since thousands of years. So one can see that the theoretical system of TCM is a quite complete system, including those from basic theory to clinical practice, from diagnosis to treatment.

Because the theory of TCM is very rich in content, and a great deal of scientific research to its different links has been done

during these 30 years, therefore these can't be introduced in a short time. The following are only a general aspect of the research of some principal items.

A. Research on Ying Yang

This is one of the most important theory among the theories of TCM. Yin Yang, what does it virtually mean? It has different meanings according to different situations. Philosophically, it means two aspects in a contradiction which is a unity of opposites, that is, Yin Yang in a broad sense. But in clinical practice, in the human body, Yin means visible substances, such as Body Fluid, Blood and Essence; while Yang means invisible function such as Vital Energy and Fire. In healthy condition, Yin and Yang keeps a relative balance. But if one falls ill, one's Yin and Yang lose their balance, and Yin and Yang tend to appear in unbalanced status (Excessive or Deficient Status). We should resume their balance by means of regulating the Yin Yang with medicinal herbs.

Since Goldberg advanced that the cAMP and cGMP are two controversy regulating systems in the body and they probably are the material base of Yin Yang Theory in 1975. It has aroused great interest in our country and many scientists explored in it. They combined the cyclic nucleotide determination with Syndrome Differentiation in TCM, that is to say, to determine the content of cAMP and cGMP in the Yin Deficiency and Yang Deficiency patients, so as to seek for the relationship between Yin Yang and cyclic nucleotide. The result showed: The plasma cAMP of Yin Deficiency patient such as hyperthyroidism increased markedly, the ratio of cAMP/cGMP showed no change or an increase, especially those Yin Deficiency patient with Excessive Fire type, the raise of the ratio of cAMP/cGMP became more evident. Yang Deficiency patients were subdivided into two types. I type, such as hypothyroidism, Sheehan's disease, adrenal cortex insufficiency, the plasma cAMP decreased; on the contrary, the II type, such as nephrosis and acute myocardial infarction, their plasma

cAMP rised. But the common point of these two types were the ratio of cAMP/cGMP markedly lowered.

Medicinal herb may regulate Yin and Yang. How does it influence the cyclic nucleotide? After taking *Astragalus membranaceus*, *Codonopsis pilosula* and *Glycyrrhiza uralensis*, these are called tonic to replenish Vital Energy, while Vital Energy belongs to the Yang, we observed that the plasma cAMP increased and cGMP decreased. In tissue of liver, the change is an inversed one: cAMP decreased and cGMP increased; and in tissue of spleen, both of them are increased.

At present, the clinical research shows: Yin (Fluid) Yang (Vital Energy) are related to cyclic nucleotide to certain extent. But it does not simply stand by the view that cAMP is Yin and cGMP is Yang, and cyclic nucleotide is the material base of Yin Yang. More attention has been paid on the importance of the relationship between the change of the ratio of plasma cAMP/cGMP and that of the Yin Yang.

B. Research of Viscera and Bowels

What are the five Viscera (Heart, Liver, Spleen, Lung, Kidney)? They are different from the viscera of Western Medicine. The concepts of internal organ or system in modern medicine and TCM are necessary to be made clear.

At present, Kidney and Spleen are the Viscera that have been most widely studied, and then the Heart, Lung and Liver.

The concept of Viscera in TCM mainly comes from the clinical practice of diagnosing and treating diseases. Therefore we can't deviate from the clinical practice. This is also different from the viscera concept of modern medicine, which is based on the anatomy and physiology.

Hence, as we carried on the study of Kidney in TCM, the first step was to differentiate the syndrome of various diseases, such as functional metrorrhagia, bronchial asthma, toxemia of pregnancy, coronary

heart diseases, neurasthenia and lupus erythematosus. According to the principle "Give same treatment to different diseases" any case that showed Kidney Deficiency Syndrome, a therapy of Replenishing the Kidney Yin or Kidney Yang was given. Satisfactory result was obtained. Then, using different parameters to find that the common material base of Kidney Deficiency patients and discovered that the 17 hydroxy-corticosteroid (17-OHCS) content in the 24 hour urine (urine 17 OHCS) excreted by the Kidney Yang Deficiency patients always reduced. The urine 17 OHCS of other groups (Lung Vital Energy Deficiency, Lung Yin Deficiency, Spleen Yang Deficiency, Kidney Yin Deficiency Syndrome) were higher than Kidney Yang Deficiency Syndrome. After the "Replenishing the Kidney Yang" treatment, the symptoms showed improvement, Kidney Yang Deficiency Syndrome cleared up and the urine 17 OHCS elevated. This result was duplicable. Same result was obtained by various sites on the Kidney Yang Deficiency patient of other diseases.

For further study of the cause of the reduction of urine 17 OHCS, a two days ACTH intravenous infusion test was applied. Most patients had lowered reaction on the first day, and reached normal on the second day. Such a delayed reaction showed: The lowering of urine 17 OHCS is secondary to the hypopituitarism. After the treatment of Warming and Replenishing the Kidney, this reactivity was markedly elevated. In order to rule out the possibility of the abnormality of corticosteroid metabolism, a dynamic observation of adrenocortical anabolism and catabolism was carried out. The result showed that the intra-adrenal and intrahepatic 17 hydroxy-corticosteroid metabolism were normal. It further proved that the lowering of urine 17 OHCS was due to hypopituitarism solely.

In order to explore the condition of higher center, a determination of blood 11 OHCS rhythm of 24 hours was performed. This test may reflect a part of the functional status of hypothalamus. Most of the

patients had an abnormal M type, while normally showed V, U or W type. This showed that there was functional disturbance of hypothalamus.

On the whole, the series of experiments indicated that the patient of Kidney Yang Deficiency has functional disturbance of different part and various degree of the hypothalamus-pituitary-adrenal axis. One of its manifestation is the lowering of urine 17 hydroxy-

Besides this axis, there were immunological changes. The lowering of the ratio of blood T cell of Kidney Deficiency patient was observed. After the Replenishing of kidney, it markedly elevated. Rosette formation test and lymphoblast transformation of Kidney Yang Deficiency Group was lower than other groups. "Warming and Replenishing the Kidney Yang" may elevate their cell mediated immunity function. The above-mentioned facts indicated that the cell mediated immunity function of Kidney Deficiency patient was lowered.

The concept of Kidney in TCM is entirely different from that of Western Medicine. It is not an excretory organ and does not belong to urogenital system, it is a functional unit closely related to the endocrine and immunological systems. What is the importance of establishing the concept of Kidney of TCM? That is only when one understands the concept of Kidney of TCM, then can one know what is so called Kidney Deficiency Syndrome. In clinical practice, if one differentiates the Kidney Deficiency Syndrome, then can one use Kidney Replenishing Recipe, and may obtain a higher effectiveness. Otherwise, it is impossible to prescribe a Kidney Replenishing Recipe.

Therefore, the Viscera of TCM, in fact are comprehensive concept based on physiological functional activity and patho physiological status. A correct comprehension is advantageous to the proper application of TCM recipe to treat diseases.

C. Research on Channels

Channel is an important link in the theoretical system of TCM. It connects the Viscera and other tissues to make them function as a whole. Channel in Chinese is Jing Luo. Jing is the mainline. There are twelve Jings which connect one after another, they proceed between the extremities and Viscera. Luo means the branches, which is interwoven with each other to form a network. They reach every where in the body. The Channel is the pathway which is used to transport the Vital Energy and Blood of the whole body, to nourish the Viscera and to regulate their function.

Is there really any Channel in the body? What is the substance of the channel phenomenon? Many scientists in our country touched this problem since 30 years ago. They had done a large number of exploring research.

After a long term research, we can say that no special anatomo-histological structure of Channel has been discovered. Someone assumed that Channel possibly is nothing but a functional phenomenon.

Since the end of fifties, large number of researchers had been put into the research to determine the skin resistance of Channel and Acupuncture Points. Someone found that there was a tendency of low resistance along the channel. They thought that Liang Dao Luo (Good Conductance Channel) is the pathway of Channel. But owing to the instability of the test instruments, many factors may influence it, the results of the determination of various sites did not coincide with each other. Hence a generally accepted view has not been formed.

In recent years, research on a large scale about the "Propagated Sensation along Channels" phenomenon has been carried in our country. That is to say, when the "Jing Point" of twelve Channels is stimulated with low frequency electric impulse, then some person would have a sensation propagated along the Channel. Such a phenomenon is called "Propagated Sensation along the Channels" phenomenon. The result of a large scale investigation (more than 60,000 persons) is: the

rate of appearance of this phenomenon account for about 5.6-45.2%. There are three characteristics about this propagated sensation:

1. Propagation along the Channel: the line of its propagation basically coincides with those recorded in the chapter about Channel of an ancient medical book "Lin Shu". On the extremities it basically coincides, but there are some deviations at the trunk of the body. As it runs to the head, then it becomes crisscross and tortuous, the line is not so clear.

2. It has a bi-directional propagation along the Channel from the point of stimulation. The sensation runs about 20 cm per second. Pressure on the propagation line may interrupt it, but there is an expansive sensation at the proximal end.

3. There is "Arrival of Qi (vital Energy) at the site of Disease (AQSD)" phenomenon. That is to say the sensation tends to move toward the locale of the disease. When the sensation reaches the organ, then a reaction of this organ happens. For instance, when the sensation reaches eyes, the vision power improves; when it reaches stomach area, this area has a heat or hunger sensation; when it reaches the anterior chest, the precordial area has a comfortable sensation; when it reaches the head, sleep follows. The degree of propagated sensation is parallel to the analgesic effect. This gives a preliminary explanation of the mechanism of acupuncture therapy. The rate of appearance in patient is much higher than in healthy people. The same phenomenon happened in the Channel with disease and is higher than these Channels without any disease.

What is the essence of this phenomenon? How can one record it objectively? What is the substance of channel? What is the relation between Channel and neuro-vascular system? These problems need further exploration.

D. Research on Syndrome in TCM

Syndrome in TCM is an unique concept in the theoretical system of TCM. It con-

sisted of a series of symptoms and signs. This is somewhat like the syndrome of modern medicine. But Syndrome of TCM has more implication than that. It contains the view of reaction state of the body as a whole. It is closely related with the etiologic factor, the locale and the mechanism of disease in TCM. A TCM doctor must differentiate Syndrome after he has diagnosed the disease, and then he may select the principle of treatment and suitable recipe. The theoretical system most commonly used in clinical practice by TCM doctor is "Treat the Patient according to Syndrome Differentiation". Various diseases that have the same Syndrome, the treating principle and recipe is basically the same, so called "Same Treatment for Various Diseases". On the contrary, a disease may divide into many Syndromes or types, their treating principles are different, even opposite in action, so called "Different Treatment for the Same Disease". It provides certain theoretical basis of the "Individualization of Treatment". At present, a TCM doctor often uses a combined diagnostic method of TCM and Western Medicine, which is called "Integration of Disease and Syndrome Differentiation".

There are many Syndromes and their many variations, also many kinds of classification of Syndromes. There are mainly Eight Cardinal Syndrome Differentiation, Viscera and Bowels Syndrome Differentiation, Blood and Vital energy Syndrome Differentiation, etc.

Eight Cardinal Syndromes (Superficial, Internal, Cold, Heat, Deficiency, Excess, Yin and Yang Syndrome) are the most important way of Syndrome Differentiation. Especially the Cold, Heat, Deficiency and Excess Cardinal Syndromes are more important than others. Many institutions are trying to study its pathophysiological and biochemical changes clinically and experimentally.

Eight Cardinal Syndrome represent a group of specific symptoms and signs, they have certain pathophysiologic basis.

Some analyzed the pathologic data of autopsies which had the Syndrome Differentiation record in their lifetime. The preliminary result showed that there were morphological changes of chronic inflammation and anemic circulatory disturbance in Cold Syndrome patients; acute inflammation and hyperaemic circulatory disturbances in Heat Syndrome patients; While in Deficiency Syndrome patients, there are degeneration or atrophy of endocrine glands, more severe chronic inflammation and degeneration of organic cells; and acute inflammation, tumor, congestive changes in excess Syndrome patients.

Immunological, physiological and biochemical determinations have been performed on the Deficiency patients (including Kidney Deficiency, Spleen Deficiency, Yin Deficiency and Yang Deficiency, etc.). The results indicated: Deficiency Syndrome and Excess Syndrome have different immunological reaction to chemotherapy, Excess Syndrome patients' tolerance is stronger during the chemotherapy than Deficiency Syndrome.

We compared the Yang Deficiency Group and Yin Deficiency Group of peptic ulcer patient and discovered that in Yang Deficiency Group, the body temperature, pulse rate, systolic pressure, diastolic pressure, amount of sweating and BMR, their values are all markedly lower than that of Yin Deficiency Group ($P < 0.01$). According to the standard of autonomous nerve reaction type, the Yang Deficiency Group is somewhat like the para-sympathetic type, while the Yin Deficiency Group is somewhat like the sympathetic type. Most Yin Deficiency with Excessive Fire patients are accompanied with the elevation of urine 17 hydroxy- and catecholamine.

Study on Cold Syndrome and Heat Syndrome showed that they were related with the functional states of the sympathetic-adrenal system. This may become the basis of distinguishing Cold Syndrome from Heat Syndrome. The strengthening of the activities of sympathetic nerve and adrenal system plays an important role in

forming the Heat Syndrome, while the attenuation of these activities is an important factor in forming Cold Syndrome.

The skin electric potential of Internal Deficiency Cold Syndrome patients was determined and a marked inhibitory state was found. But after the treatment of Replenishing Yang Recipe, the skin potential tends to recover.

The relationship between cyclic nucleotide and Yin Deficiency and Yang Deficiency has been introduced in the "Yin Yang" paragraph.

To sum it up, from the findings of different parameters of autonomous nerve function test, skin potential, energy metabolism, cyclic nucleotide and pathologic autopsy, the Eight Cardinal Syndrome do have their material base.

In order to carry out the experimental study of Syndrome, to elucidate the essence of different kinds of Syndrome and to elevate the level of treating the patient, according to Syndrome Differentiation, many institutions are trying to make experimental animal models imitating the Syndrome in TCM. For instance, to make a Spleen Deficiency animal with Rhubarb decoction. The animal shows Deficiency Manifestations such as dyspepsia, laziness, reduced body weight, hairs pricked up, etc. After taking "Sijunzi Decoction (Codonopsis pilosula, poria cocos, Atractylodes macrocephalus, Glycyrrhiza uralensis) which has the function of Invigorating the Spleen and Replenishing the Vital Energy, the animals become normal again.

Besides, Yang Deficiency model with injection of cortisone and Yin Deficiency model with giving of thyroxin, blood Deficiency model made by means of blood letting, Vital Energy Deficiency model made by means of blood letting, Vital Energy Deficiency model made by means of semi-starving or deep X-ray radiation, etc. No matter how these models are immature ones, they have brought about many benefit to the research of Syndrome and the mechanism of medicinal herbs. It is worthwhile for further exploration.

E. Research on Four Diagnostic Measures

1. Study on Pulse Diagnosis

Rich experiences have been accumulated by the TCM on Pulse Diagnosis. In TCM, the pulses are divided into 28 kinds or more. The connection between the Pulse Condition obtained from three portions, Inch, Bar and Cubit to be felt with light, moderate and strong force of both hands and Visceral diseases is described in detail. For instance, Slippery Pulse indicates Phlegm and pregnancy, Floating Pulse indicates Superficial Syndrome, Cubit portion pulse lack of strength indicates Kidney Deficiency, left Bar portion Taut and powerful pulse means Liver disease, Rapid Pulse indicates Heat Syndrome, etc. Pulse Condition is an important foundation for Syndrome Differentiation in TCM.

Most of the study on the Pulse Diagnosis in our country are: to study the relationship between different Pulse condition of TCM with various diseases and Syndromes. But there are many people who recognize the importance of the Pulse Diagnosis Objectivization (to make an objective recording of the Pulse condition of TCM). They use Pulse Recorder as early as 1953. Up till now, there are more than ten different types of Pulse Recorders. Most of them are Recorder with transducers, like piezocrystal type, electromagnetic type, sphygmograph with strain resistance or with liquid transducer, etc. And also Recorder without transducer, the Ultrasonic Doppler's Effect Diagnosis Device. Some research work has been carried out about the wave form, frequency, rhythm, amplitude of the recorded pulse wave. Someone has stored the different kinds of pulse wave and its indications in the computer so as to make further research.

2. Study on Tongue Diagnosis

TCM has paid much attention to the Tongue Diagnosis. It has made painstaking observation on the form, colour, texture and dynamic change of tongue proper and its coatings. Particularly it connects various parts of tongue with Viscera, such as the apex belongs to Heart in TCM, the root belongs

to the kidney in TCM. It also connects the Tongue Manifestation with Syndrome, Differentiation of TCM, such as the smooth and Red Tongue proper belongs to Yin Deficiency, Light Tender and Edematous Tongue proper belongs to Yang Deficiency, a Yellow coating belongs to Heat Syndrome, while a white Sticky coating belongs to the Damp Syndrome.

Just the same as pulse Diagnosis, a lot of clinical Research has been done on Tongue Diagnosis. For instance, 70% of the acute myocardial infarction patients have a dark purplish Tongue proper, a part of them have ecchymosis, this indicates that there is Blood stasis Syndrome. After treatment of "Promoting the Blood Circulation and Relieving the Stasis", the patient improves, the Tongue Manifestation resumes normal. Therefore the change of Tongue Manifestation may be taken as a reliable guiding parameter for Syndrome Differentiation and medication.

The objectivization of Tongue Manifestation is also an important topic for research. Colored Tongue Atlas and observation of the tongue papilla changes with slit lamp microscope and papilloscope are being used. The spectrum of reflected light are also used to determine the color of the Tongue Proper. In order to obtain Tongue Coating sample for making a morphological observation, a tongue Coating Biopsy Sampler is designed and used. Cytological examination of the smear of Tongue Scraping is also applied.

At Present, the application of the computer techniques in the field of Syndrome Differentiation of TCM has begun in Beijing, Tianjin, Shanghai and Wuhan. For instance, in Wuhan, a mathematical model of Syndrome Differentiation of TCM has been established, a general multiple computer procedure has been edited. They applied the procedure to the clinical practice, observed the therapeutic effect of the Syndrome Differentiation to bacillary dysentery, CHD, liver disease, facial paralysis and cerebral vascular disease. Based upon

the statistics of 1,500 person-time, the rate of coincidence of diagnosis and treatment between computer and doctor may reach 96-97%.

F. Research on Principle of treatment

In our country, research on "Promoting the Blood Circulation and Relieving the Stasis (PBCRS)" are being most widely explored. Next are the "Reinforcing the Vitality and Consolidating the Foundation of the Body (RVCFB)", "Clearing the Internal Organ with Purgatives", "Detoxifying and Clearing the Heat". These studies are always combined with some effectively treated diseases. Further study their mechanism and elucidate the essence of Syndrome are being carried out.

1. The principle of PBCRS

The principle of PBCRS is mainly used for treating Blood Stasis Syndrome. The chief manifestations are: pain (especially definite stabbing pain), dark purplish lips and tongue, tumor and bleeding. The most common diseases are: cardiac and cerebral vascular diseases, acute abdomen, autoimmune diseases, neoplasms, skin diseases, psychosis etc. The most commonly used herbs are: *Salvia miltiorrhiza*, *Ligusticum walliichii*, *Carthamus tinctorius*, *Raemonia obovata*, *Prunus persica*, *Leonurus heterophyllus*, *Reticulate millettia*, *Corydalis yanhusuo*, *Panax pseudoginseng*, *Daemonorops draco*, *Boswellia carterii*, *Commiphora myrrha*, etc.

CHD: 600 angina pectoris patients were treated with CH No. II (*Salvia m.*, *Ligusticum w.*, *Paeonia o.*, *Carthamus t.*, *Dalbergia oderifera*). The total effective rate was 90.7%, ECG effective rate was 76.3%. Experimental research showed that this recipe has anti-thrombus, thrombolytic and antiarteriosclerotic function. At the same time, it dilates coronary artery, protects pituitrin induced cardiac ischemia. It has spasmolytic and analgesic effect. It lowers the blood viscosity.

Myocardial infarction: It is treated with the principle of "Replenishing the Vital Energy and Promoting the Blood

Circulation". The mortality has been lowered from 20-30% to about 11% with the application of the combined therapy of TCM and Western Medicine. In animal experiments, the Anti-myocardial infarction mixture (Astragalus m., Codonopsis p., Polygonatum sibiricum, Salvia m., Paeonia o., Curcuma aromatica) showed obvious protection from the experimental cardiac ischemic damage of dogs.

PBCRS has a marked inhibitory action to the activity of RBC membrane ATPase of healthy people. It obviously elevates the plasma cAMP content of mice.

Liver necrosis: Ligusticum w. and Rheum officinalis intravenous infusion accompanied by other combined therapy of TCM and Western Medicine lowered the mortality of acute and subacute liver necrosis to 37.5%, while that of control group was 83.3%.

More than 2,000 cases of extrauterine gestation were treated with Extrauterine Gestation No. II (Paeonia o., Prunus p., Salvia m., Sparganium stoloniferum, Curcuma zedoaria). The result was satisfactory. Experimental research showed: PBCRS recipes and drugs promote the elimination of pelvic blood or hematoma. It dilates the blood vessels, strengthens the phagocytic function of the monocytic phagocytes.

Neoplasms: The PBCRS drugs with some anti-cancer actions are: Paeonia o., Carthamus t., Ligusticum w., curcuma a., Boswellia c., Commiphora m., Angelica sinensis, Salvia m., Hirudo nipponia, Tabanis bivittatus, Sparganium s., Curcuma z., etc. Their mechanisms of action are: They improve the microcirculation of tumor and its surroundings, so that the anti-cancer drugs and ICC (immunologically competent cell) may penetrate into the tumor; strengthen the phagocytic action of macrophage and directly act upon the metabolism of tumor cells, such as salvia m. inhibits the respiration of tumor cell and glycolysis, Rhein and Emodin (two effective ingredients of Rheum o.) inhibits its oxidation and dehydrogenation.

Experimental research shows: PBCRS recipes and herbs mainly have the following actions:

1. Influence on the cardiovascular and peripheral vessels: It dilates coronary artery, cerebral and extremity vessels, relieves the smooth muscle spasm of blood vessel, increases the blood flow, lowers the cardiac oxygen consumption.
2. Improves the microcirculation, increases the number of opened capillary networks, reduces the capillary permeability.
3. Influence on the blood coagulation: it increases the cAMP content in the blood platelet, hence inhibits the platelet aggregation induced by ADP, lowers the platelet surface activity, promotes its dis-aggregation. It increases the activity of fibrinolysin, decreases the activity of fibrin stabilizing factor, thus reduces the blood coagulation.
4. Influence on the hemorheology: It lowers the blood or plasma viscosity, the speed of erythrocyte electrophoresis accelerates.
5. Reduces the blood lipids and inhibits the arteriosclerotic plaque formation.
6. Improves the immunologic functions of the body. It has immunosuppressive functions, reduces the anti-nuclear antibody and IgG, rheumatoid factor becomes normal, and has an apparent inhibition on the antibody forming cell.
7. Influence on the metabolism of collagen fibers: It inhibits the collagen producing action of fibroblasts, reduces collagen synthesis, enhances blood collagenase activity.

Besides these, there are the regeneration of the endocrine and metabolism of protein, anti-inflammatory and analgesic function, and promote the cell regeneration, etc.

Therefore, the principle of PBCRS has many fields of action, its therapeutic spectrum is broad. It is a very promising treating principle.

2. The principle of Reinforcing the Vitality and Consolidating the Foundation of the Body (RVCFB)

Its a kind of reinforcing principle of treatment which aim at strengthening the disease-resistance of the body. So called "Foundation of the Body" means Spleen and Kidney. Because according the theory of TCM, Kidney is the inborn foundation, while Spleen is the postnatal foundation.

The most commonly used (Spleen) Vital Energy Replenishing herbs are: *Panax ginseng*, *Codonopsis p.*, *Astragalus m.*, *Atractylodes m.*; (Kidney) Yang Replenishing herbs are: *Cinnamomum cassia*, *Cuscuta chinensis*, *Polygonatum s.*; (Kidney) Yin Replenishing herbs are: *Scroph ularia nipponensis*, *Ophiopogon japonicus*, *Asparagus cochinchinensis*, *Adenophora stricta* and turtle shell, etc.

RVCFB is often used in clinical practice to treat chronic bronchitis, tumor and other chronic consumptive diseases, and senile and exhausted patients. It may improve the symptoms, build up physical strength, reduces the recurrence and extend the lifespan. Some critical shock state may be rescued with Si-Nie Decoction (*Aconitum carmichaeli*, *Zingiber officinalis*, *Glycyrrhiza u.*) which has the function of Replenishing the (Kidney) Yang; or with Shengmaisan (*Panax g.*, *Ophiopogon j.*, *Schizandra chinensis*) which has the function of both Replenishing the Vital Energy and Yin.

Experimental study showed: RVCFB may retard the swimming exhaustion time of mice, strengthen the tolerance against anoxia and cold, elevate the adrenal cortex function, reinforcing the immunological function of the body. For instance, *codonopsis p.* and *ragalus m.* may strengthen the phagocytic function of RES, raise the

ratio of T lymphocyte and lymphoblast transformation, increase the rate of rosette formation. Rabbits were immunized with crude protein as antigen, and found that the antibody formation time was shifted ahead of time after medication with Replenishing Yang herbs, while the antibody formation time was extended after medication with Replenishing Yin herbs.

Therefore after the application of RVCFB, there are effects of increasing the vitality, tolerance and immunologic function, thus recovering the homeostasis of the body. It is also a promising principle of treatment in TCM.

In 1929, those raised "To Ban the Traditional Medicine bill insisted to a theory, they considered that the effectiveness of TCM was due to the efficaciousness of medicinal herbs, the theory of TCM was "unscientific", and could be substituted by the theory of Western Medicine, which was much better than that of TCM as they thought. Therefore they put forward a theory called "Ban the Medicine and Preserve the Medicinal Herbs". Half a century has passed since then. Many facts, especially many facts of clinical and experimental research in the past 30 years have proved that there are many scientific essences instead of "unscientific" in the theory of TCM. The above-mentioned are only a small part of it. To explore these scientific essences of TCM and to elucidate it with scientific terminology will certainly contribute greatly to the health of the people of the world.

Moreover, from the point of epistemology, the understanding of modern medicine to the most complicated thing-human body, has not reached its peak yet. There are many things which remain to be explained. There is no limit to the development of science. The knowledge of Western Medicine is based upon the basic learning such as anatomy, physiology, based upon the experimental study. The characteristic of

their knowledge is meticulousness and precise. Analysis is its good quality. While the knowledge of TCM is based upon the clinical practice. The characteristic of their knowledge is taken as a whole. Synthesis is its good quality. A substance observed from two directions will be much better and more comprehensive than that from one.

The TCM and Western Medicine are the products of observation from various points of view, using different means to observe the same object—the patient. Therefore, modern scientific research on the theory of TCM and Western Medicine will complement each other. It is not only necessary, but also has a bright future.