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Understanding Traditional Chinese Medicine – A Doctor's Viewpoint

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ABSTRACT

Singapore is a cosmopolitan country and its population comprises the Chinese, Malays, Indians, and others such as the Eurasians. In this heterogeneous, multi-racial, multi-lingual and multi-cultural society, medical treatment is also varied. People can seek modern (mainstream, western) medicine or traditional medicine when they are sick. Usually they first seek modern medicine. Some turn to traditional medicine as complementary treatment or alternative treatment. Traditional medicine is here to stay in this country. In November 2000, the Traditional Chinese Medicine (TCM) Practitioners Bill was passed in the Singapore Parliament. Health care providers, including doctors, would benefit from a good knowledge of both modern and traditional medicine. Practitioners in traditional medicine should also learn modern medicine.

Keywords: complementary and alternative medicine (CAM), herbal medicine, acupuncture, moxibustion, Singapore

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INTRODUCTION

The primary aim of an individual when he becomes ill is to get well as soon as possible. To him it does not matter what particular type of medical treatment he has to use. What a patient wants is to receive a non-invasive treatment that is free of side effects. Also, medical treatment should not cause him discomfort and pain, and where possible is cheap and affordable.

Though modern medicine is asserted to be scientific and widely accepted as the mainstream medicine, many countries approve traditional medicine. Doctors should therefore have good understanding of not only modern medicine, but also traditional medicine commonly used by its people.

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TERMINOLOGY

1. Modern medicine, mainstream medicine and conventional medicine

   Modern medicine is considered by many as the mainstream medicine. Some call it Western Medicine. Generally modern medicine practitioners (doctors) are trained in the universities, medical schools and hospitals where they are taught basic medical sciences and clinical skills. Modern medicine is also known in US as conventional medicine.

2. CAM or complementary and alternative medicine

   The term "complementary and alternative medicine" (CAM) reflects the nature of treatment that it complements modern medicine, or used as an alternative[1,2]. CAM is not recognised as the dominant medical system (main stream). Therefore it is not available in hospitals, or reimbursable by health insurance companies, the employers and others. Professional practice registration is usually not required and a monitoring organisation or independent audit systems are usually lacking. CAM relies on anecdotal evidence and the practitioners of CAM show little understanding of the need for controlled clinical trials. They also lack the knowledge of how to do valid evaluations of their techniques scientifically[3].

   More individuals being treated with modern medicine also seek other types of medicine. CAM is considered synonymous with traditional medicine. Some have labelled it as "unconventional medicine".

THE FDA AND HERBAL MEDICINES

Many practitioners of traditional medicine claim that the FDA (US Food and Drugs Administration) approve the herbs they prescribe. This may send a wrong message to the public or the consumers. In 1994, two conferences were organised by the US FDA. The FDA asserted that 1) Herbs are not medicines but foods; 2) Data based on traditional use of herbs has no validity; 3) Assessment standards outside America (including those in Europe) are inferior to American ones; 4) Assessment of herbal medicines should be as rigorous as for pharmaceutical drugs and must include randomised-controlled trials (RCT); and 5) Herbal medicines should be liable for the same sort of development costs as pharmaceuticals. Chinese

herbs would be classified as "Dietary Supplements" and would be regulated as such. Finally the FDA considers that no efficacy of herbal medicines has been proven and most benefits are likely to be placebo.

THE PREVALENCE OFTRADITIONAL MEDICINE

Strictly speaking, there is no alternative medicine. There is only scientifically proven, evidence-based medicine supported by solid data. There should be one type of medicine or treatment that makes people well, from which all doctors should learn. Many people still consider traditional medicine as unproven medicine for which scientific evidence is lacking[4]. The World Health Organisation estimates that four billion people or 80% of the world's population presently use herbal medicine for some aspect of primary health care[5].

Traditional or complementary medicine is very popular even in the West. In a recent survey, it was found that in Europe, 50% of the French and German use complementary medicine; and 77% of the German pain clinics use acupuncture; In Belgium, 74% of acupuncture treatments and 84% of homeopathic treatments are carried out by medical doctors. Forty-seven percent of medical doctors in the Netherlands practise some form of complementary therapy.

In 1990 there were 60 million Americans who used alternative medical therapies, costing $13.7 billion. More people opted for alternative medicine (425 million) than primary care physicians (388 million). A recent survey reported that American adults using CAM increased from 34% in 1990 to 42% in 1997[6,7].

This figure may not be accurate. More than 70% of the patients did not tell their doctors that they had visited practitioners of alternative medicine. With such an enormous number of patients going for alternative medicine, an Office of Alternative Medicine (OAM) was set up in 1992 to do scientific evaluation of alternative medicine[8].

TCM PRACTICE IN SINGAPORE

In Singapore, the practice of TCM is confined mainly to outpatient care. Forty-five percent of Singaporeans have consulted TCM, as per a survey conducted by the Ministry of Health Singapore in 1994; 12% or 10,000 of daily outpatient attendance was estimated to be seen by TCM practitioners, the majority of whom were trained locally by TCM schools[9]. The number of traditional medicine clinics operated by TCM practitioners grew by 59% between 1990 and 1998. In 1998, the total income of TCM practitioners was S$57.6 million, an increase of 21% amounting to 9.7% of all the health clinics[10]. Rationally, for provision of better health care, only those physicians properly trained in TCM should be allowed to practise TCM in our country.

TRADITIONAL CHINESE MEDICINE (TCM)

The Chinese consider modern medicine as Western medicine 西医 (*xi yi*) because modern medicine originated from the Western world in contrast to Chinese medicine 中医 (*zhong yi*). Many people here term traditional medicine as TCM or Traditional Chinese Medicine.

There are many types of TCM, namely, Acupuncture 针疗 , moxibustion 艾灸 , herbal medicine 草药, acupressure 针压, qigong 气功, oriental massage 推拿 , diet膳疗, etc. Acupuncture and herbal medicine are more popularly known and commonly practised.

In acupuncture, specific areas of the skin (acupoints) are penetrated with thin metallic needles, which are then manipulated manually or by electrical stimulation. This technique claims to be effective for chronic lung diseases, alcoholism, relief of pain (post-operative and back pain), nausea, drug detoxification, urticaria, nicotine withdrawal syndrome, etc. There was clear evidence that acupuncture was effective in relieving postoperative chemotherapy-associated nausea and vomiting and postoperative dental pain in adults[11]. There are other situations e.g. addiction, stroke rehabilitation, headache, menstrual cramps, tennis elbow, fibromyalgia, osteoarthritis, low back pain, carpal tunnel syndrome, asthma, etc for which acupuncture plays a role as adjunctive treatment. More controlled studies however, are needed.

Some consider acupuncture more "scientific" because it has demonstrated functional MRI evidence. The brain activity in real time can be visualised. The visual cortex activity can be observed when the somatic areas are stimulated electrically. Cho demonstrated the correlation between activation of specific areas of brain cortices and corresponding acupoint stimulation predicted by ancient acupuncture literature. It is possible to show lineage between somato-visceral regulation and the corresponding brain function[12].

Acupuncture was noted to be effective in treating some types of pain in adults, such as migraine, back pain, and dental pain[13]. However, in acupuncture, controlled studies fail to support its efficacy. Some suspect whether it is a placebo effect. Some consider that there might be acupuncture-induced analgesia with the release of opioids e.g. endorphin, enkephalin, dynorphin, mobilisation of neuropeptides[14]. Acupuncture may adjust visceral function and modulate immune response.

Moxibustion is less well known compared with acupuncture. In moxibustion, change of skin temperature occurs at acupoints, which are heat-stimulated by burning compressed herbal powders at these sites. It was postulated that moxibustion works by heat-mediated neuronal release of nitric oxide

(NO) and stimulation of somato-visceral reflex. In moxibustion, heat shock proteins are activated too[15].

Acupmoxia is a combination of acupuncture and moxibustion.

TCM treatments are largely unproven and highly controversial. Few patients forgo mainstream medical care for alternative treatment. It has been claimed that TCM is non-invasive with little or no side effects. TCM also enhances emotional and physical well-being and help control symptoms[16].

Although TCM strengthens the body to resist disease in general, it is not a means of combating specific diseases[17].

TCM: OUR ROLE AND ATTITUDE

What then is our role in TCM in this country? We know that TCM is here to stay, and doctors should not denounce it and remarking that "it does not work". Physicians trained in modern medicine should have some knowledge of TCM and should not claim total ignorance. They also have a role to educate the TCM physicians and patients. Knowledge of the side effects, risk, limitations and benefits of herbs is useful. It is necessary to know as much as possible the adverse effects of drug interactions when both modern and traditional medicines are taken together[18,19]. Physicians should address issues with openness and willingness to learn the relevant lessons in TCM. Effective doctor-patient communication is useful.

Many patients feel uneasy to tell their doctors that they are receiving both modern and traditional medical treatment at the same time. Some patients do not volunteer to give a proper history of traditional medicine. When communicating with patients on traditional medicine, the doctors must reassure their patients that they are not trying to identify bad health practices, followed by disciplinary action against the TCM physicians. It must be stressed that their information on traditional medicine is useful in managing their illness. The doctor is then able to advise them whether the practice is safe. It is important to build trusting relationship between the doctors and the patients[8].

TRADITIONAL MEDICINE: WHAT A DOCTOR SHOULD KNOW

It is important for a doctor to know the commonly used TCM herbs and drugs, and their potential side effects. As many patients are taking both modern and traditional medicine, drug interactions between these two types of medicine should be known as much as possible. The doctors should be fully aware that many modern medicines have been added to herbal medicine especially the patent medicine. These medicines are usually labelled as *fu fang* (复方 compound prescription) or *qiang li* (强力 fortified prescription). One must always be aware that many TCM prescriptions contain toxic substances, heavy metals such as lead, mercury and arsenic[20]. As far as possible, one must also try to understand the pathophysiology and mechanism of action of traditional medicine.

SOME MISCONCEPTIONS OF THE TCM PHYSICIANS

Many TCM physicians believe that modern medicine is not holistic and that it ignores the effect of the environment on human beings. TCM considers that man and heaven (environment) are one entity, termed 天人合一. TCM physicians also claim that herbal medicine is milder and less toxic in nature. Such claim is untrue. They also assume that modern medicine utilises mainly non-organic chemicals that cause allergy and hypersensitivity[21].

SOME MISCONCEPTIONS ABOUT HERBAL MEDICINES

It is reasoned that TCM comes mainly from plants that contain organic matters that are neutral substances. These are therefore considered milder, less toxic, safer, and more harmless than "manufactured" drugs? Are herbs really safe? Indeed there are many medicinal plants that are extremely toxic. For example, strychnine, popularly known as the "deadly nightshade"or belladonna, and some species of mushrooms are nature's most dangerous poisons. Others are *Cao Wu* (草乌 *Radix Aconitum kusnezoffi*), Chuan Wu that contains highly toxic alkaloids, including aconitine. The *Yang Jin Hua* (洋金花 *Datura metel*) and *Nao Yang Hua* (闹羊花 *Flos Rhododendri mollis*) contain scopolamine, hyoscamine and atropine.

WHY IS IT DIFFICULT TO STUDY HERBAL MEDICINE?

Conventionally TCM decoctions are prepared at home by the patient or the family. Therefore quantitative and qualitative control become a problem. Decoction is prepared in an unscientific way, e.g. various amounts of water used, different temperatures and duration of boiling, the "age of the plant," (for plants and herbs, there is no expiry date). The patients invariably end up receiving different dosages of medicine each time, seriously affecting the therapeutic effect. Most people have little understanding of the proper way of preparing TCM. There are differences in the water-soluble and oil or alcohol soluble decoctions. For example, the effect of garlic is not the same as garlic oil that had undergone steam-distillation during preparation. The chemicals would be altered or different

after the process. In a study by an Australian centre, the investigators packed all the dried herbal powder into a capsule and used it in RCT[22]. This showed that they had little understanding of how herbal medicine was prepared. It is incorrect to prepare herbal medicine in the western way! In TCM, herbal medicines are prepared by boiling, and re-boiling to produce a decoction. Through boiling for many hours, some of the active ingredients might have dissolved in the water to produce a therapeutic effect. Some preparations require mixing with alcohol; presumably some ingredients dissolve better in alcohol. It was found that many standardised herb extracts failed to deliver full potential. The therapeutic effect might have been different had the whole plant been used. Therefore it was postulated that in TCM many active ingredients work together, rather than one single ingredient[23]. It is not known whether the ingredients have complementary, synergistic, antagonistic effect.

If a drug containing a single chemical extracted from herb is produced for use, it can no longer be considered as TCM practice. In TCM, it is the whole herb that is prescribed as formulation. Would the product still be considered as "herbal"? It is more akin to a novel and unlicensed drug! It is in fact a modern formulation with a pharmaceutical approach. The drug might have an unknown direct toxic effect!

Another difficulty encountered in the study of herbal medicines is that the actions of herbs are multiple. One single herb has anti-microbial, hypotensive, cholerectic, diuretic, and sedative actions. Some effects are beneficial but others are undesirable, or even harmful. Some herbs have an opposing effect when given in different dosages. For example, *Da-huang* (大黄 *rhubarb or Rheum officinale*), when prescribed in a larger dose (1-5 gm of sennoside A) causes catharsis; but in a smaller dose (0.05 to 0.3 gm) causes constipation.

In TCM, one plant product is considered a single item in the prescription. But one plant product contains multiple pharmacological agents or chemical compounds[24]. These chemical compounds may act on non-target organs the therapeutic effects of which may be considered undesirable. Furthermore, pharmacokinetic study of various components is extremely difficult.

CHEMICAL CONTENTS VARY IN DIFFERENT PLANT CYCLE

Some chemical contents in the plant vary in different plant cycle. In the plant *Atremisia* choleretic substances in the capitulum, leaf and stem change at different plant cycle. The highest scoparone content was found before flowering, (1.52%), and 0.46% during flowering period[25]. Also there may be seasonal and regional (soil) variations of the chemical contents of a plant. Such characteristics render the study of herbs difficult. The dispensers in the herbal store should be aware of this, for better quality control.

INTERACTION OF HERBAL REMEDIES WITH PRESCRIBED MEDICATIONS

Patients with chronic cardiac failure prescribed digoxin might also take ginseng as a supplement to "strengthen" the body and the heart, thinking that ginseng is some sort of herbal tea or food. It was reported that elevated serum digoxin levels occurred in a patient who took digoxin together with Siberian ginseng that contains cardiac glycosides[26]. It has also been found that red ginseng and digoxin had synergism for treatment of congestive heart failure[27]. There was also a report that ginseng could induce diuretic resistance[28]. Some ginseng could cause raised blood pressure[29].

IMPORTED PATENT MEDICINES

In the past few decades, many Chinese proprietary medicines formulated into "modernised" finished products such as tablets, pills, mixtures, etc have been introduced into the market. Patients need not prepare their own herbal medicines in the traditional way such as boiling to produce decoctions. It is a western way of preparing TCM or "Eastern medicines". These patent medicines can be purchased over the counter at the herbal stores and the patients feel reassured and presume that the medicines are safe for consumption. Unfortunately there is lack of quality control and the drugs have not be subjected to RCT.

In Malaysia, it was reported that 40% of the medicinal shops sold medicines that contained toxic substances[30]. The health care providers are advised never to prescribe a patent medicine unless all the ingredients contained therein are known. In California, of the 260 products investigated by the health department, at least 83 (32%) contained undeclared pharmaceuticals or heavy metals, and 23 had more than one adulterant. These patent medicines contained undeclared pharmaceuticals such as ephedrine, phenacetin chlorpheniramine, methyltestosterone, and etc.[31].

WHY IS IT DIFFICULT TO UNDERSTAND TCM?

For one to understand traditional medicine or TCM in this case, one has to refer to medical literature written in the original non-English language. Most TCM literature was written in classical Chinese. Studying TCM literature by reading the translated English versions could be very difficult. The meaning could have changed after the TCM literature is

translated in the English language. The value and accuracy of the translated literature depend on the translator's standard of both English and Chinese, and his understanding of the contents therein.

For instance, in modern medicine, spleen is translated into Chinese as 脾 (*pi*). But in TCM, 脾 (*pi*) denotes the digestive system. However, in many TCM books translated into the English language, *pi* is translated as spleen. This puzzles the readers who confuse an organ (spleen) with a system (digestive system). In TCM, disorders of the digestive system is known as *pi xu* 脾虚 . Many translators translate *pi xu* as weakness of the spleen. The whole concept has therefore changed. In TCM there is no pancreas and the term is not mentioned. Pancreas is included as *pi*, part of the digestive system.

Similarly the heart 心 (*xin*) in TCM, not only controls circulation, but is also for alertness, emotions, thinking, memory, etc.

伤寒 (*shang han*) means febrile illnesses due to external factors (bad weather or other adverse environmental factors). It comprises important theories in TCM. The renowned Chinese physician Zhang Zhong-jin 张仲景 had written a book *The Treatise of Febrile Diseases* 伤寒论 at the beginning of the 3rd century. The treatise has been one of the most influential works in the history of Chinese Medicine. In olden China, people who intended to be physicians must study it. Unfortunately in modern medicine, typhoid has been translated as *Shang Han*. Many people wonder why was it so important to study typhoid in order to practise medicine! The meaning deviates completely after translation into the English language.

The following message is reproduced to prove the point that translation *verbatim et literatim* does not help in the understanding of TCM. In the chapter on neonatal jaundice, it was recorded that the aetiology was "...due to retention of damp-heat in the interior...impairs the function of liver and gall bladder in maintaining the free flow of *Qi* (energy), and thereby spread the bile on the body surface.... The downward movement of damp-heat...to urinary bladder leads to deep yellow urine like strong tea..."[32] To a modern medical doctor, the whole message has no meaning at all!

In modern Chinese, the meaning of 淫 (*yin*) is lascivious, but it means excessive in TCM. Similarly 气 (*qi*) implies air and in actual fact it means a mechanism, force or energy.

Also 精 (*jing*) in modern Chinese is sperms but the medical literature written in classical Chinese stated that jing was a collective term of body fluids (blood, sweat, sperms, saliva, tears, urine).

Most TCM literature is written in Classical Chinese. People who are taught in modern-day Chinese or *bai hua wen* 白话文 might not have the language standard to understand classical Chinese. Thus, translators of Chinese medical literature must not only have a good command of English but also proficient in modern-day as well as classical Chinese. These people are rare and few. Obviously a person with just a primary or even secondary education in Chinese would not understand classical Chinese or TCM literature.

MISTAKEN IDENTITIES OF SOME TCM HERBS

To add to the confusion, most herbs are known by many names or terminologies. Some are popularly known by the local people, some come in with 汉语拼音 *hanyu pinyin* names, some with pharmaceutical, some with botanical, some with Latin, etc There is a possibility that when one comes across herbs with they terminologies, these might be an identical herb. It always happens that for the same herb, it has different names. For example, ginseng is known by many names.

In the Chinese language: 人参，人衔，黄参，地精，孩儿参，野山参，移山参 or
In *Hanyu pinyin*: ginseng, ren shen
Latin names: radix ginseng
Scientific names: Panax ginseng

Not all ginsengs are identical. There are over 2000 varieties of ginsengs and the components are entirely different. For example, there are *Panax ginseng* (oriental ginseng), *Panax quinquefolin* (American ginseng), and *Eleutherococcus enticosus* (Siberian ginseng) that contains glycoside called eleutheroside that is related closely to digoxin. Some produce caffeine-like effects in the central nervous system; some enhance carbohydrate metabolism and glycogen synthesis; some may stimulate the heart because of digitalis-like substances; some have histaminic activity. Some ginseng act on the hypothalamus/hypophysis, stimulate ACTH secretion resulting in increased synthesis of corticosterone and contain steroids that can affect the hormonal system[33-35].

Some herbs bear apparently similar names, but they are entirely different compounds. In 1991, Belgium reported 51 cases of renal failure after taking the weight reduction drugs. Initially the medication, in use for 15 years contains the herb 汉防已 *Han Fang Ji* (*Radix Stephania tetrandra*) and had no reported side effects. Subsequently it was discovered that there was mistaken identity of the herb. It was realised that another type of Fang Ji called 广防已 *Guang Fang Ji* (*Radix Aristolochia Fangchi*) had replaced *Han Fang Ji*. These two types of *Fang Ji* were considered by the

importers as alike. Unfortunately *Guang Fang Ji* contains aristolochic acid that can cause renal failure[36,37].

In the use of traditional drugs, no patient deserves to be treated with a remedy that is more than the disease. It is essential that traditional drug therapies should be submitted to appropriate benefit/risk analysis. The drug should be looked at not only its pharmacological efficiency; but also the social utility of the drug in its cultural context[38].

Our goals in medicine are to continue searching for better treatment. In modern medicine, a better or more effective treatment replaces the older treatment. TCM has played its role in the past. With emergence of better treatment, what further role traditional medicine can play? Is it necessary to redefine the its role, to make TCM more scientific, for the advancement of medicine?

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