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Integrative Medicine: A Paradigm Shift in Clinical Practice

Review Article

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Abstract Various approaches to the care of patients coexist in modern society, such as original traditional medicine (including traditional Chinese medicine – TCM), modern traditional medicine, Western medicine, and integrative medicine. Given advances in medical science and clinical practice in the 21st century, there is a need for better integration of these approaches. The purpose of this paper is to summarize existing approaches focusing on original traditional medicine, modern traditional medicine, and Western medicine, and to propose a more synthesized perspective that embraces various approaches under the concept of integrated medicine.

Keywords Original Traditional Medicine, Modernization, Modern Traditional Medicine, Western Medicine, Integrate, Integrative Medicine

1. Introduction

There exist various healing and treatment approaches in modern medicine, which generally fall into four broad categories: (1) original traditional medicine, (2) modern traditional medicine (modernization of traditional medicine), (3) Western medicine, and (4) integrative medicine. These approaches differ significantly in their origin, philosophy and treatment methodologies, and each has its own unique health care practices. However, the merit of each is debatable and little is known about the comparative effectiveness of these approaches in treating various acute and chronic diseases. In what follows, a brief description of each approach is provided along with a discussion of its strengths and weaknesses in advancing medical sciences and clinical practice. The paper concludes with a recommendation for a more integrated approach.

2. Original traditional medicine

Original traditional medicine has distinctive advantages and has different systems of theory that nevertheless seem complementary. This kind of medicine includes health practices, approaches, knowledge and beliefs incorporating plant, animal and mineral-based medicines, spiritual therapies, manual techniques and exercises, applied individually or in combination to treat, diagnose and prevent illnesses or maintain well-being [1]. The most well-known kind of original traditional medicine is traditional Chinese medicine (TCM). China has a longer history than most other countries, and therefore has a richer history of medicine history that dates back many hundreds of years to the imperial era, when there was a
unique system of care for diagnosing and curing illnesses. “Holistic” treatment administration is the most important aspect of TCM. East Asians, Europeans and Americans have been treated by TCM for a variety of diseases with herbs, acupuncture, Tai Chi quan, and massage. In America, Tai Chi quan has been used in treating Parkinson’s disease, fibromyalgia and rheumatic diseases [2-4], with only rare instances of side effects.

There are also other original traditional medicines. In Africa, up to 80% of the population relies on herbal concoctions for their primary health care needs[5]. The Kagera region of northwestern Tanzania has a rich culture of original traditional medicine use and practice [6]. Ayurveda, one well-known Indian approach, as well as some other traditional medicine systems have attempted to meet demand by seeking alternatives for the conventional herbs or other ingredients [7-8], integrating Western medicine disciplines with the tenets of Eastern medicine. In the United States, Eastern medicine, or Chinese medicine, is often regarded as a complementary and alternative medicine; in China, however, it is believed to be just as effective as Western medicine [9]. Chinese medicine emphasizes the body’s innate ability to heal itself. Much like osteopathic medicine, physicians trained in TCM emphasize that a pathologic lesion in one region of the body can manifest itself in another part of the body, such as the tongue or the radial pulse. For example, all inpatients and outpatients who are seen on the oncology service in the China–Japan Friendship Hospital are asked to stick out their tongue for inspection by a physician. According to the beliefs of TCM, its practitioners can see how efficiently and properly the body is working based on the colour and texture of the patient’s tongue [9]. TCM is not simply treatment with drugs, but also involves complicated theories and specialized methods. For example, in Western medicine the ears are not considered to be related to the kidneys, while in TCM theory they are thought to be peripheral organs of the kidneys. If somebody has epicondylitis or tinnitus, this indicates weak kidneys (Yin or Yang deficiency) according to the theory of Chinese medicine, and if the patient is treated with properly selected traditional Chinese kidney medicine, the ear syndrome might be cured [10]. The mechanism has been certified by Shen using modern bio-technological equipment [10], although Western medical scientists find it difficult to accept the findings.

Original traditional medicine, such as TCM, has many benefits as the primary form of health care in many countries, but it has its limits. First, most original traditional medicine theories originate in a long native history, and have a unique system and abundant preventative and therapeutic methods [11,12]. Some old traditional methods such as “feeling the pulse” are among the most difficult diagnostic methods in TCM, and may be a source of confusion for many doctors. It is very difficult to quantitatively and objectively learn and master these techniques. Second, the formulations of TCM drugs are very old and inconvenient, since most oral original traditional medicines are ingested as tisane or boiled medicines; furthermore, there are many different and complex ingredients in the formulations, prepared using many different types of methods. Improper preparation can result in concoctions with unstable or uncertain effects, and in the worst-case scenario the formulation prepared may even be toxic [13]. Third, some TCM uses methods that are very complex to control, such as acupuncture, yoga, Qi Gong, Tai Chi quan, and massage, and thus yields different effects with different practitioners. Fourth, it is weak or relatively slow in treating acute diseases or modern Western diseases, such as acute heart failure, acute appendicitis, pulmonary tuberculosis, and high blood pressure; it can also have limited success in controlling the symptoms of epilepsy, pain, schizophrenia, idiopathic Parkinson’s disease and so on. Fifth, some processed traditional medicines or Chinese patent drugs, such as zinnober poria cocos, zinnober polygala tenuifolia, and Zhi Bao pills for children include zinnober, arsenic trioxide, realgar and other components that can be considered somewhat toxic; these components can therefore have harmful effects if not used properly. Finally, ayurveda, TCM and other systems of traditional medicine have been facing the problem of diminishing availability of genuine raw materials, specifically plants, animal parts, and minerals, for several decades. There are also ethical problems with respect to the use of animal bones or organs and insects.

While original traditional medicine offers a popular and effective treatment and prevention option, integration of this traditional therapy with other contemporary medicine approaches would further strengthen both its therapeutic value and clinical merit.

3. Modern traditional medicine

Original traditional medicine has limitations and needs to advance using modern technology [14]. The modernization of traditional medicine (modern traditional medicine) should include “removing dross, retaining essence and becoming more suitable and scientific”. Clearer theories and more convenient methods should be developed for traditional medicine, and new effects for old and potent medicines should be identified.

Modern traditional medicine includes four main developments. First, the diagnosis of diseases in old theories has been expanded. The identification of diseases by traditional theory seems limited for modern society: every year, many new diseases appear; some of these can
be diagnosed with old theories of traditional medicine, but many of them might have completely unknown hundreds of years ago. Many modern authors have sought to expand the diagnoses and the definitions of traditional medicine to deal with the various new diseases [1,14]. Second, the manufacturing processes for modern traditional medicines have not yet been perfected. The specificity and quality of original traditional medicines are serious problems in many countries. Nowadays, quality control in factories that manufacture materials for original traditional medicine takes place according to strict national or international criteria. In most East Asian countries, decocting medicines are a common form of original traditional medicines, with others being granules, honeyed pills, and skins of animals and outer layers of plants. Many countries make more stable, pure components or medications that are easy to ingest from raw materials, even administering them as intravenous drip formulations [14], or develop more facilitated and organized theories of the original traditional medicine for the use of acupuncture, Tai Chi quan, massage and other traditional exercises or treatments. Third, the teaching of original traditional medicine has developed and been improved [15]. With the development of medical science technology around the world, teaching materials and theories for original traditional medicine need to be developed that are in accordance with modern science. In China, students who want to be a traditional doctor or integrative doctor must study modern medicine just like students who are studying Western medicine. The fourth and final development is the advanced application of original traditional medicine. Some doctors have used acupuncture anaesthesia in operations [16], or use materials from modern traditional medicine to execute operations [17]. Modern acupuncture seems to be more effective and powerful for treating acute diseases than the original traditional medicine, and is without serious side effects. Some operations that are conducted under acupuncture anaesthesia can be as successful as those performed using traditional drug anaesthesia.

Although modern traditional medicine has developed rapidly, it still has limitations. For example, pharmaceutical technology derived from modern medical science is not suitable for modern traditional medicine because pure oral decoctions cannot be made, even less infusion-reaction intravenous drips. Acupuncture anaesthesia alone is not sufficiently potent or effective for operations [16]. There are also resource and ethical issues related to materials used in modern traditional medicine, such as the use of rare and endangered species of plants or animals, and even rare minerals. The materials and methods of modern traditional medicine developed from original traditional medicine are often not powerful enough to treat acute infections, high blood pressure, epilepsy, tuberculosis, acute haemorrhage, and many other conditions and diseases. Traditional drug anaesthesia can only be used in small and low-risk operations [17]. Modern traditional medicine is unable to treat most diseases properly without the simultaneous involvement of Western medicine.

4. Western medicine

Western medicine is also called modern medicine. Since the 18th century, with the developments of anatomy, biology, pathology, microscopy, pharmacology and laboratory animal science, most of our understanding of diseases in Western medicine has been supported by evidence-based research. These scientific technologies have helped us understand, appreciate, and identify many diseases, and have assisted medical scientists with the discovery of details about the biology, pathology, and pharmacology of these diseases, which include various kinds of viral, bacterial and tuberculosis infections. They have aided the discovery of more powerful chemical treatments and established appropriate, low-risk surgical procedures to cure many dangerous diseases such as acute appendicitis, acute cholelith disease, and acute cerebral injury, which could not be treated properly using original or modern traditional medicines. Such technologies enable effective methods for dealing with influenza, pneumonia, myocardial infarction, cerebral infarction, neuro-infectious diseases, shock, epilepsy, cancer, and even degenerative diseases such as Parkinson’s disease and Alzheimer’s disease. Many guidelines have been developed for treating sub-divided diseases through clinical trials or good clinical practice (GCP). The most famous and powerful contribution of Western medicine is vaccines, which enable most people to avoid contracting many dangerous diseases in the first place.

Diagnoses in Western medicine are supported by advanced medical devices and laboratory tests that provide accurate and reliable evidence to guide doctors in the treatment of diseases. Doctors examine patients comprehensively and systematically with the help of their senses (visual examination, palpation, percussion, auscultation and olfactory examination) and hand-held instruments such as stethoscopes, percussion hammers, sphygmomanometers, and thermometers, as well as advanced and accurate high-tech instruments, devices, and methods such as sphygmomanometers, molecular biology, bacteria culture, animal experiments, computed tomography (CT), and magnetic resonance imaging (MRI). They are also able to identify the real causes (aetiology) of diseases, such as a bacterial or viral infection, anaemia, parasite, cancer, etc. They place much emphasis on so-called “evidence-based medicine”, which has many interpretations. With advances in brain imaging and medical technologies, PET and/or MRI scans are increasingly being used for diagnostic purposes, and
deep brain stimulation (DBS) is also becoming technologically sound for treating the symptoms of Parkinson’s disease.

While Western medicine can be considered the mainstream of modern medicine, it also has various disadvantages. First, it is over-dependent on evidence. A Western medicine physician often likes to identify the causes of any uncomfortable feeling and to deal with it according to guidelines published by Western medical societies or government-related health organizations. In fact, symptoms such as numbness, itchiness, dizziness, and even pain cannot be completely explained by Western medicine. The pathologies of these symptoms are very complex; the same symptoms can appear as a consequence of different diseases, or even without the presence of a disease. Many diseases cannot be explained completely using modern scientific technology, for example Creutzfeldt-Jakob disease, amyotrophic lateral sclerosis (ALS), acquired immune deficiency syndrome (AIDS), cancer, and Alzheimer’s disease, and although some of these have been studied based on gene sequences, Western medicine has only weak integrated methods for their treatment. Second, although thanks to advanced technology, Western medicine is tending towards being more integrated and effective at controlling many symptoms of diseases, such as the rigidity and tremors of Parkinson’s disease, the pain of post-therapeutic neuralgia, and the twitching and cramping of epilepsy, it also appears to have a weak ability to control all syndromes (holistic syndrome). Non-motor symptoms of Parkinson’s disease have received much attention from neurologists, but Western medicine appears to be less effective at controlling non-motor than motor symptoms [18]. Western medicine is also weak in treating chronic liver disease, the toxic side effects of pharmaceuticals, and preventing the onset of newly developed strains of influenza. Third, Western medicine treats some diseases on the basis of indicators such as blood pressure, blood cholesterol, routine blood tests, and even blood glucose, and treats these abnormalities with pharmaceuticals. However, sometimes the accompanying dizziness and/or headache is not alleviated even though hypertension is reduced; if cholesterol is modified to a normal level, the subject may appear to be very weak or have no energy the subject may be very weak or fatigued if their blood pressure is brought to a normal level, despite feeling comfortable with a high blood glucose level. It is therefore possible to say that modern Western medicine treats patients in a manner that is over-dependent on various indicators or parameters in a dogmatic and mechanical fashion. Fourth, most Western medicines are chemicals, and therefore can generate strong side effects. With the development of modern technology, Western medicine is tending towards being perfect in physiology and pathology. However, despite advanced technology, diagnosis often remains problematic, and treatment methods of Western medicine remain non-comprehensive. Fifth, Western medicine lacks holistic integration and individualization. Often a disease is treated using a single method according to the guidelines, and doctors do not consider the possibility of differences in susceptibility among different groups. For example, for some conditions such as high blood pressure, different races (Asians, blacks, whites) have different susceptibilities. Even among people of the same race, there are differences between people who are overweight, sedentary, heavy smokers, heavy drinkers, vegetarians, or night-shift workers. However, they will all be treated using antihypertensive medications according to the relevant guidelines. They will experience different effects and side effects. Optimal treatments and methods based on holistic properties are needed to modify and finalize the treatment administration.

5. Integrative medicine

Original traditional medicine, modern traditional medicine and Western medicine both have their limitations. In this pluralistic world, various political systems, diverse cultures and different social values are often in conflict. Social progress is achieved by concurrently allowing both independent development and integration of various perspectives, thereby leveraging the advantages of a development system [19]. In the field of science and technology, interdisciplinary development has become an important force for progress. These days, at least in the United States, everyone is talking about quality rather than quantity of care; attempts are being made to create a large, holistic system based on health care quality.

As an emerging medical interdisciplinary subject, integrative medicine absorbs and integrates the respective characteristics and advantages of original traditional medicine, modern traditional medicine and Western medicine through comparison, analysis, research, and application. This integration embodies the objective of providing better medical care in terms of scientific thinking, theoretical systems, diagnostic tools, and treatment technology.

Neurology patients frequently ask their physicians about complementary and alternative medicine (CAM) as options for treatment. According to a 2002 survey, 62% of people in the United States used CAM [20]. Mind-body therapies focus on the relationships between brain, mind, body, and behaviour, and their effect on health and disease. Many of the techniques are associated with relaxation and thus may be helpful for disorders where psychological stress is a factor. Mind-body approaches encompass a large group of therapies such as hypnosis, meditation, yoga, biofeedback, Tai Chi quan, and visual imagery. Integrative medicine is a means of combining any
effective methods or treatments from original traditional and modern traditional medicines or Western medicine, in order to establish new, complex ways to effectively treat, diagnose or research various complex diseases or symptoms, avoid misdiagnoses, side effects or unilateral treatment, improve quality of life, and prolong lives. Effective examples are the integrated treatments for chronic liver disease [21], the prevention and cure of severe acute respiratory syndromes (SARS) [22], various cancers, and even neurodegenerative diseases such as Parkinson’s disease [23-24] and amyotrophic lateral sclerosis [25]. Acupuncture has been widely studied in the United States and in fact many insurance companies and health care planners provide coverage for acupuncture to their patients. There is also emerging research on the prevention of bone loss and other chronic conditions by Chinese herbs, if administered in combination with modern treatments as integrative medicine [26]. Other famous examples of integrative use are Qinghaosu (Artemisinin) and Pishuang (Arsenic) [27-28], which have contributed significantly to human health. Integrative medicine could be used in optimized and holistic treatments for any disease or symptom.

Many people mistakenly use the term “integrative medicine” interchangeably with the terms complementary medicine and alternative medicine, or collectively as complementary and alternative medicine (CAM). While integrative medicine is not synonymous with CAM, CAM therapies do make up an important part of the integrative medicine model. Integrative medicine should focus on the whole person (holistic) and make use of all appropriate therapeutic approaches, health care professionals, and disciplines to achieve optimal health and healing [29]. It combines conventional medical treatments with other therapies that are carefully selected and shown to be effective and safe. Its goal is to unite the best that conventional medicine has to offer with other healing systems and therapies derived from cultures and ideas both old and new. Topics of interest include, but are not limited to, the following: multiple clinical evaluative technology, integrative biochemistry research technology for medical applications, discovery of complementary and alternative treatments, natural health science, composite medical research technologies, development of biochemical science, evidence-based research of traditional medicine, integrative development of image methods for medicine, development of electrical equipment for medicine, frontier discoveries in bioscience, complex health care, hybrid technologies for medicine, natural production technology, and the bio-mechanisms of acupuncture or acupoint. Whenever possible, integrative medicine favours the use of low-tech, low-cost interventions. Through collaborative and cooperative efforts of intuitively adept and technologically adept minds we can integrate and advance our understanding, increase our ability to predict, prevent, and diagnose disease, and expand our therapeutic options [30].

6. Conclusion

TCM is a leading ambassador for the various types of original traditional medicine worldwide. The modernization of TCM has resulted in improved diagnoses and manufacturing, optimized concepts, and developed measurements. Western medicine embodies the spirit of inclusive development of different cultures. Integrative medicine, as a whole medical concept with the ethos of a “new medicine for a new life” [19], will, through joint efforts, be able to make greater contributions to boosting medical advances and safeguarding human health.

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8. References


