FEATURE ARTICLE

The Model of Western Integrative Medicine: The Role of Chinese Medicine

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ABSTRACT The basic concept of integrative medicine (IM) is that by combining mainstream (biomedicine) with complementary and alternative medicine (CAM), synergistic therapeutic effects can be attained. When the methods of mind/body medicine (MBM) are added to this combination, as in Western countries, a new concept emerges that drastically changes the approach toward illness.

It is interesting to note that the joining of traditional Chinese medicine and Western medicine in the early days of the Peoples' Republic of China preceded the Western model of IM by almost 50 years. Several elements that make up the key components of IM as practiced today in the West were already present in the Chinese version of IM, and Chinese medicine has played and continues to play an important role in advancing IM. However, one of the major differences between the Chinese and the Western models of IM today, besides MBM and some other treatment options, is that Western integrative medicine (WIM) strictly requires its CAM methods to be supported by scientific evidence.

The therapeutic methods of IM and their applications are many and varied. However, they are most frequently employed to treat chronic medical conditions, e.g., bronchial asthma, rheumatic disease, chronic inflammatory bowel disorder and chronic pain. Other fields in which IM may be applied are internal medicine (inflammatory bowel diseases and cardiovascular diseases), musculoskeletal disorders, oncology (chemotherapy-induced side effects), obstetrics and gynecology (dysmenorrhea, endometriosis, infertility and menopausal complaints), pediatrics, geriatrics, neurology (migraine and chronic headache), and psychiatry (anxiety and depression).

The concept of WIM is discussed here in detail by reviewing its scope and implications for the practice of medicine and focusing on the role of Chinese medicine in WIM.

KEYWORDS integrative medicine, complementary and alternative medicine, traditional Chinese medicine, integrative oncology, evidence-based medicine, Chinese herbal medicine, acupuncture

The Origins of Integrative Medicine in China

At the beginning of the 20th century, Chinese medicine (CM) was generally considered antiquated. Since it was thought to be less sophisticated than Western medicine (WM), the Chinese government banned traditional medicine and took measures to stop its further development. During the entire Republican era (1911–1949), acupuncture was not included in the curriculum of the medical colleges[1]. In the 1920s and 30s, with the tendency of most Chinese people to view their own medicine as antiquated growing stronger and stronger, "WM" became widely accepted, especially in intellectual circles. This culminated in an attempt to completely abolish CM in China in 1929, which however failed due to the united protest of the traditionally trained physicians.

About 5 years later, in 1934/35, as MAO Ze-dong was leading his armies on the "Long March", they were cut off from the cities and had to depend on rural doctors, many of whom still practiced TCM. Impressed by the effectiveness of CM, Mao officially promoted the "cooperation" of Western and Chinese medicine (zhong xiyi hezuo, 中西医合作) in 1944 during a speech at the northwestern border region Shaanxi-Gansu-Ningxia. Later, in October 1949, at the "First National Congress for the Administration of Public Health," he went a step further and promoted "unification" (zhong xiyi tuanjie, 中西医团结) of the two systems as the solution[2]. Finally, at the "Third

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National Health Conference" in December of 1953, Mao moved even further toward strengthening CM by saying "Henceforth the most important thing is to ask practitioners of WM to study CM and not for practitioners of CM to study WM ...." Whereas the official target had previously been to "improve the scientific foundation of CM." He now promoted the establishment of a "unified medicine of China (zhongguo tongyi de yixue, 中国统一的医学)." From 1954 onward, MAO Ze-dong more and more vigorously advocated the value and concerns of CM[2-4]. In unifying Western and Chinese medicine, he had likely intended to utilize all available medical resources to preserve China's greatest capital, its people, whose health was in desolate condition after more than 20 years of continual warfare (1927-1949). CM was renamed "traditional Chinese medicine (TCM)" after an article by FU Lian-zhang from 1955 that appeared in the foreign edition of the "Chinese Medical Journal" (*Zhonghua Yixue Zazhi*).

Definition of Western Integrative Medicine

Western integrative medicine (WIM) combines methods from the complete spectrum of medical approaches, i.e., modern and traditional, on a scientific basis. Because of semantic changes, notably over the past two decades, it is necessary to define the terminology of the various medical approaches[5]. Until recently, it has been suggested to use the term complementary instead of integrative medicine (IM) in order to not to confuse the public. In the opinion of the authors, the two terms are not interchangeable, and in this paper, IM will refer to the combination of mainstream medicine (i.e., conventional, orthodox, modern, or biomedicine) with complementary and alternative medicine (CAM), or CAM, which may be said to include any healing practice of mainly European origin that does not fall within the realm of conventional medicine. Thus, the practitioner of WIM is especially trained in the complex practice of merging mainstream with CAM treatments, which in general is not within the scope of physicians who are trained as specialists of complementary medicine alone.

The term TCM refers to the traditional medical practices that originated in China and includes such treatments as, e.g., Chinese herbal medicine, acupuncture, dietary therapy, and various methods of massage and exercise. Mind/body medicine (MBM) refers to a variety of therapeutic techniques involving, e.g., relaxation methods, autogenic training, or meditation to enhance the mind's ability to positively affect bodily function and symptoms.

The Paradigm of WIM

WIM employs the treatment methods of both mainstream medicine and CAM, thus differing from the IM practiced in China, which utilizes TCM instead of CAM. An extended version of WIM includes the methods of MBM (Figure 1).

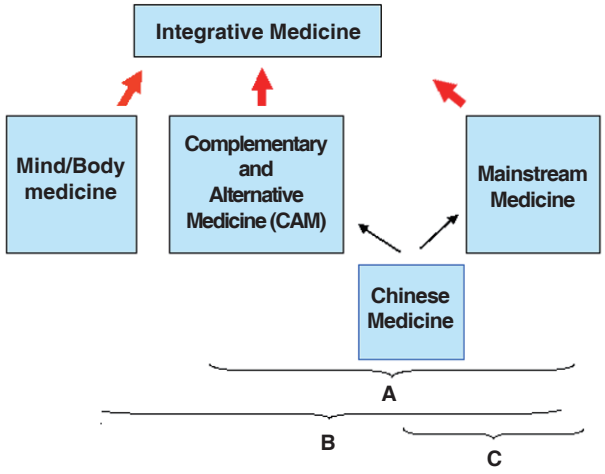

Figure 1. Three Models of Integrative Medicine in the West (A) or (B) and in China (C). The Extended Version (B) of IM Includes MBM. The Extended Western Model is Used in the Department of Complementary and Integrative Medicine at the University of Duisburg-Essen.

An important feature of WIM is the active involvement of patients in their own treatment, e.g., with fasting, dietary changes, or exercises, and encouragement to take responsibility for maintaining their own health. The therapist is to approach the patient's situation with an open mind. According to Sackett, a particular therapeutic option should be chosen according to current scientific evidence supporting the effectiveness of a specific treatment method (external evidence) and according to the personal clinical experience of the physician (internal evidence) in relation to a specific condition or disease[6,7].

In this context, I would like to point out the pragmatic point of view of the "NHS Centre for Reviews and Dissemination" in Great Britain which states that three factors are important in evaluating the right choice of therapy: (1) the level of evidence, (2) the cost of therapy, and (3) the potential side-effects. Although the first-line intervention in acute disease requires the highest level of evidence, adjunctive treatments for chronically ill patients may not. Here therapeutic interventions with lower levels of evidence

but fewer side-effects may be preferable[8].

Although research in naturopathy was deemed of marginal necessity in the past, practitioners of modern WIM agree that systematic research on CAM is needed, while taking into consideration the underlying holistic principles. As an example, fasting therapy may be applied to treat a chronically ill patient with, e.g., high blood pressure, diabetes, and chronic polyarthritis[9,10]. However it is most important to determine which patients will benefit from fasting and which medications or combinations thereof (e.g., antihypertensives, nonsteroidal anti-inflammatory drugs, anticoagulants, diuretics, and/or oral anti-diabetic drugs or insulin) should be applied and of course, carefully monitored, and at what dosage[11]. In chronic polyarthritis a number of CAM methods that have been proven to be effective can be combined with mainstream treatment[12-14]. When CAM methods that have been proven effective are appropriately combined with conventional treatment, the side-effects of the latter can often be reduced[15]. In this case, the patients' benefits are twofold: a reduction of medication and of the severity of side-effects. CAM methods are not merely added to mainstream medicine but create an interfacing of the two different systems.

Serious research in CAM began only relatively recently. On a worldwide basis, active research in this field emerged after the National Center for Complementary and Alternative Medicine (NCCAM) was established in 1998 in Washington, D.C. In the past, practitioners of complementary medicine reacted rather reluctantly to demands that they adopt a scientific approach, sometimes even denying that scientific evaluation of its procedures was necessary or possible. In contrast, WIM is dedicated to the systematic evaluation of CAM methods and to their integration into modern medicine. That is, WIM involves more than just the creation of a new term for familiar concepts such as complementary medicine or alternative medicine[3,16,17].

Although it is possible to apply medical guidelines to CAM, the quality of the trials is still generally poor. Vague criteria for enrolling patients, inappropriate statistical procedures, the wrong choice of endpoints, high dropout rates, and inadequate follow-ups are some of the frequently occurring handicaps in the controlled trials.

However several of the difficulties that investigators face are CAM-specific, e.g., randomization may be difficult because patients in the control group often refuse to accept the conventional treatment, and for some procedures, such as acupuncture, leech therapy, or cupping, blinding is not possible[18]. Some difficulties are peculiar to acupuncture research[19]. No matter how good the overall design, an acupuncture trial can never be double blinded: The acupuncturist will always know whether he is applying real or sham acupuncture. Since it can never be ruled out that the therapist will somehow communicate this, single-blinding remains a serious methodological problem[20].

IM, A Shift in Paradigm?

IM aspires to combine mainstream medicine and CAM on a scientific basis. As this is accomplished, it could promote a paradigm shift for both conventional medicine and CAM. This may explain why there are critics on both sides. Astonishingly, even when the effectiveness of a complementary therapy has been adequately demonstrated, it is not automatically integrated into the repertory of conventional medicine, and if it is integrated at all, usually, it is used only when it is requested by patients.

Thomas Kuhn, the most significant scientific philosopher of the 20th century, argued in The Structure of Scientific Revolutions that science does not progress via a linear accumulation of new knowledge, but undergoes periodic revolutions, also called "paradigm shifts"[21]. These paradigm shifts do not occur easily, but only when a problem cannot be sufficiently resolved using current concepts.

Looking at the field of conventionally practiced medicine, many illnesses, especially chronic ones frequently occurring in industrialized countries, often cannot be treated satisfactorily with conventional therapy. In addition, since the majority of people above the age of 65 years require continual medical supervision, the costs of healthcare have exploded. High costs are likely to continue for a long time, and they may increase further, conceivably leading to a breakdown of the entire healthcare system. For example, in Germany, the costs of treatment of chronically ill patients account for 75% of expenditures required for in-patient treatment[22].

When WIM is practiced, it may be assumed that health care costs can be reduced along with the side-effects of conventional treatments[23]. These expected

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financial benefits are another strong argument for the establishment of WIM as a basis of patient care.

The treatment of many chronic diseases requires new treatment strategies that involve the self-healing capacity of the body in addition to the known conventional therapies. Therefore, new concepts promoting openness, understanding, and trust in the new theories must be developed in the interim. In order to develop an IM, an important first step is to develop a common language, which by definition has to be a scientific one. For example, the term "detoxification," used by naturopaths to describe the physiological effects of fasting therapy, will require scientific clarification: namely, " …fasting induces leptin depletion that leads to an inhibition of lymphocyte proliferation… "[24] as a possible model to explain the alleviating effects of fasting in chronic polyarthritis.

To summarize, physicians who practice WIM must be familiar with the benefits and pitfalls of both medical systems, conventional, and CAM. They must recognize the necessity of supporting their methods with scientific evidence in relation to their effectiveness. A sound scientific basis of WIM and the obvious necessity of change due to the dramatically rising costs of healthcare and the increasing number of chronically ill patients will hopefully lead to a consensus with the proponents of the old paradigm. Otherwise, current concepts of medicine will not change automatically but only after the proponents of old paradigms have become a minority.

In addition, the ever-increasing patient demand for integrative treatments will further a change in paradigm.

The Practice of IM in Germany and the U.S.A.

In 1998, in response to political pressure, the NCCAM was established as part of the National Institutes of Health (NIH) in the United States. Since then, it has developed into the world's leading research facility for CAM. In 2008, it was allotted 121 million dollars for research in CAM and MBM[25].

By 1999, two-thirds of American medical schools had integrated CAM methods into their curricula[26]. In the meantime, the concept of IM (in Great Britain, "integrated medicine") has been established as a part of training and practice at many prestigious medical schools and institutions, e.g., at Stanford University Medical School, the Harvard Medical School and the Sloan Kettering Memorial Hospital in New York, which even has a Division of Integrative Oncology[27].

The Western model of IM as practiced in the USA combines conventional medicine with scientifically established therapies of CAM and includes mind/body methods.

In Germany, the integration of CAM methods into the curriculum for medical students has been required by law since 2003. In 2004, the first Chair for Complementary and Integrative Medicine was established at the University of Duisburg-Essen. Meanwhile, a number of German university departments are focusing on CAM research[28, 29].

The Role of TCM in WIM and in China

Over the past 40 years, mainstream medicine has shown considerable progress in healing illnesses and prolonging life. At the same time, chronic and functional illnesses have become a greater problem in health care. Here, CAM methods were found to promote healing without the need for surgery or mainstream medication. Especially the therapeutic methods incorporating TCM proved to be very effective, often complementing and enhancing treatments used in WIM.

When juxtaposed, the respective therapeutic approaches are notably similar:

TCM	Complementary medicine
Diet (yao shan)	Dietary therapy
Taiji/Qigong	Excerise/stress reduction/mind/body
Tuina	Manual and massage therapy
Acupuncture	Draining and purging, reflexology
Chinese Phytotherapy	Western phytotherapy

In some ways, Mao's early vision of a "unified medicine of China" has come to life in the West, especially since the fall of the iron curtain and the subsequential increased exchange between Chinese and Western physicians. As this continues, more trials are being carried out on both sides to establish the efficacy of acupuncture and to define the ingredients of Chinese herbs and their therapeutic effects on specific diseases and different types of tissues.

Ironically, while TCM is steadily gaining popularity in Germany and the Western world, a recent online survey by China Youth Daily and Tencent.com revealed the opposite trend in China itself. There TCM is losing out to WM in the popularity stakes"

Only 28 percent of the 14 677 respondents surveyed said they would turn to TCM first even though 87 percent said they still had faith in the centuries-old practice. Half of the respondents who voiced their support for TCM believe it is an effective cure for many diseases, but 27 percent only trust it because it is the quintessence of China". As for the future of TCM, more than 60 percent said they were not optimistic"[30].

In the Western world, both physicians and patients are dissatisfied with the current practice of WM today[31], with more and more patients seemingly gravitating toward complementary medicine. For example, in 2005, a public opinion poll of the German Institute of Demoscopy in Allensbach revealed that only 18% of all German citizens interviewed would exclusively seek conventional medical treatment if they became ill, whereas 61% would prefer to be treated by a combination of Chinese and Western medicine. Of those who had previously received TCM therapy, e.g. acupuncture, 89% preferred to have a combination of treatment methods, i.e. those of IM. In addition, only 7% interviewed wished to be treated exclusively by CAM methods[32].

Many would agree that the great progress made in biomedicine only applies to certain fields: the number of deaths resulting from common infectious diseases, such as malaria, tuberculosis, acquired immune deficiency syndrome, diarrhoeal diseases, pneumonia, etc., has steadily decreased in wealthy as well as some poorer nations[33]. Chronic illnesses, however, are developing into a new scourge worldwide. Indeed, the World Health Organization (WHO) has referred to these as a "global epidemic"[34]. Although new techniques in surgery and research into new drugs are often promising, in effect, little has been done to prevent and treat chronic diseases. The majority of people over the age of 65 are suffering from some sort of chronic disease. Not all of these patients sufficiently benefit from biomedical therapies.

This has led to disappointment and even anxiety among patients, who then turn to natural remedies that are thought to be safer while still delivering acceptable results.

Thus, the reason for the discrepancy between the popularity of TCM in China and in the West may lie in the fact that in the West, TCM is used mainly to treat the chronic diseases that WM often fails to alleviate. It can be expected that the ongoing modernization of Chinese life, with its various attendant stresses and possible dietary changes to include fast foods and diary produce, will lead to health problems similar to those experienced by people in the West: chronic pain, allergies, irritable bowel disease, and the ever increasing autoimmune diseases. In the long run, this may lead to a renaissance of TCM in China.

IM in the 21st Century Needs A Strong Scientific Foundation

A survey by the Chinese University in Hong Kong of 2 938 randomized controlled trials of TCM published in 28 different journals concluded that the methodologies of those trials were seriously flawed and urgently needed to be improved[35]. The study designs and statistical methods of trials published in Chinese TCM journals in the two years 1985 and 1995 were compared by Wang and Zhang[36] to determine the trends over that 10-year period. Although the authors noted that those methods had definitely improved over the years, they concluded that the faulty application of statistical methods in such trials remained a serious problem.

Other authors have noted that clinical trials published in Chinese journals never conclude that the method of treatment reported is ineffective. Therefore, they recommended that data published in certain countries be very cautiously interpreted since they suspect that "publication bias" is responsible for the implausibly high rate of efficacy of the published procedures[37]. These findings were confirmed by others in 2007 showing a high bias rate in TCM trials published in Chinese-language journals[38].

Thus, Chinese research in the field of TCM and published in Chinese journals for TCM currently has little international impact mainly because of its methodological weaknesses. Here, improvement is needed.

In September 2009, the First Consensus Conference on Chinese Medicine in Germany and its future perspectives took place at the University of Duisburg-Essen, at my institute, headed by the first author (GD). The conference was attended by the key-players of academic and clinical TCM in Germany. Most importantly, the then State Secretary in the Ministry of Health (Ms. Marion Caspers-Merck) and representatives of the major German health

insurances and drug companies were also involved. The following questions were discussed: What is the potential of TCM in a Western health care system? What are the legal considerations in obtaining official permission to administer Chinese herbs in prospective studies? Which issues are relevant for the future integration of TCM into the German health-care system[39]? The Consensus Conference focused on the methods of treatments with Chinese herbs and acupuncture in the Western health care system.

Currently acupuncture is the most prominent CAM practice in the Western world. The recently published German Acupuncture Trials (GERAC) and the Acupuncture Randomized Trials (ART) were the largest clinical trials conducted in acupuncture research so far. Acupuncture was shown to be as effective as or even more effective than conventional treatment in alleviating tension type headache, migraine, low back pain, and osteoarthritis of the knee. These studies greatly contributed to the acceptance of CAM and acupuncture in the West[40-43]. Recently, even the New England Journal of Medicine published an article on low back pain and acupuncture[44].

Although presently not as prevalent as acupuncture in the Western world, Chinese herbal medicines may be of major importance in the future because of their special treatment options, some of which are listed in Table 1.

Table 1. Current List of Indications of Chinese Herbal Treatment in a Western Health-care System as Defined by the Consensus Conference

1	Digestive problems (esp. irritable bowel disease, ulcerative colitis, Crohns disease, diarrhea)
2	Diseases of the respiratory tract (esp. bronchial asthma, chronic bronchitis, lung infections)
3	Allergic rhinitis
4	Skin diseases (psoriasis, urticaria, exzema)
5	Neurovegetative diseases (insomnia, depression)
6	Rheumatic diseases (chronic polyarthritis, osteoarthritis)
7	Dysmenorrhea, endometriosis and other gynecological problems
8	Adjunct therapy in cancer patients

Methods of IM in Europe

The definition of CAM varies according to culture and country. The German/European usage of classical naturopathic methods consists of five areas, that are based on the methods of Kneipp: dietary therapy, exercise, hydrotherapy, phytotherapy, and so-called ordnungstherapie, a precursor of MBM that integrates spiritual and emotional aspects of the patient. Added to this are balneo-massage and manual therapy[11]. According to the catalogue of naturopathy based on the official curriculum for postgraduate training in CAM, so-called extended naturopathy such as purging and draining methods (xie fa, 泻法), fasting[9,10], leech therapy[45, 46], and cupping[47], as well as neural therapy may be applied. The most important therapies of foreign origin are those of TCM. Here are some examples of evidence of the applied methods in TCM:

Acupuncture:	For low back pain and osteoarthritis of the knees[48, 49]
Tai Chi:	For preventing falls in elderly people[50] useful for the treament of fibromyalgia[51]
Tuina massage:	In low back pain[52]
Chinese herbs:	As adjunct therapy in cancer treatment and malaria respectively:
	Astragalus-based Chinese herbs and plat um-based chemotherapy for advanced non-small cell lung cancer[53]
	Noto-ginseng enhances the anti-cancer effect of 5-fluorouracil on human colorectal cancer cells[54]
	Chinese medical herbs reduce chemotherapy side effects in colorectal cancer patients[55]
	Artemisinin derivates for severe malaria[56]

MBM, A Unique Element of WIM

MBM plays an essential role in the extended model of WIM (Figure 1)[57]. Important contributions to MBM were made during the 1970s and 80s by prominent clinicians like Herbert Benson at Harvard Medical School[58,59] or Jon Kabat-Zinn at the University of Massachusetts Medical Center[60,61] and their coworkers. MBM uses a holistic approach to health and healing based on research into stress physiology, stress psychology, and psychoneuro- (endocrino-) immunology and utilizes Antonovsky's salutogenetic paradigm[62]. MBM expands the approach of mainstream medicine beyond defining factors that cause disease by attempting to identify inherent human resources that, when developed, can help to restore and maintain health. Thus MBM focuses on not only the physical and psychological but also the social and spiritual aspects of human beings[63]. One of its main aims is to help motivate patients to make lifestyle choices that promote self-healing. In this process individualized modi operandi of imparting information, motivating, training,

and encouraging reflection are applied. For instance, the Harvard program of Herbert Benson consists of five pillars: techniques to elicit the relaxation response[64], cognitive restructuring, exercise, diet, and social support. In the mindfulness-based stress-reduction program by Jon Kabat-Zinn, the main focus lies on meditation and the development of mindfulness in daily life.

With the number of health problems due to maladaptive lifestyles increasing, MBM supports a shift from increasingly expensive treatments to more cost-effective preventive approaches by strengthening the patients' responsibility for their own health[65, 23, 46].

Potential of Western and Chinese Integrative Medicine

IM offers treatments other than drugs and surgery. The emphasis here is on CAM and mind/body methods that help the patients regain homeostasis, stabilize their health, and prevent illness. WIM creates an understanding of the potential of the human organism for self-repair and healing. The practice of this type of medicine includes the philosophy as well as the application of clinical methods that relate to the interaction of mind, body, and spirit. All physicians recognize the necessity to treat the actual disease, but it is important to keep in mind that illness is partly influenced by factors that impair the patients' ability to regulate their homeostasis. The physician who practices CAM methods understands the importance of guiding and educating patients about how not to get ill and of communicating to them the philosophy of WIM. By applying this approach the physician himself can benefit significantly by integrating CAM methods and mindfulness into his personal life.

These methods could play a major role in clinical practice in the treatment of chronic diseases, such as bronchial asthma, rheumatic diseases, chronic inflammatory bowel disorders, and cardiovascular diseases, as well as chronic pain secondary to neurological disorders, like migraine, chronic headache, and post therapeutic neuralgia[66] or musculoskeletal disorders refractory to conventional treatment. In the field of obstetrics and gynecology, mainstream medicine may be more effective in treating common gynecological disorders, such as dysmenorrhea, endometriosis, infertility (male and female), and menopausal complaints[67-70] when combined with CAM, especially acupuncture and Chinese herbal medicine.

Integrative Oncology

Conventional cancer therapies often include surgery, chemotherapy, and radiation. Although generally life-prolonging, they may have side-effects that seriously affect a patient's quality of life. Immediately after a diagnosis of cancer, patients often experience anxiety and other mood disturbances. These may fluctuate over time in response to various possible phases of the disease: remission, recurrence, or the diagnosis of refractory disease. The most frequently experienced side-effects of cancer treatments are nausea, fatigue, procedure-related and neuropathic pain, ulceration and inflammation of the oral and gastrointestinal mucosal membranes, and mental distress. These symptoms often start at the onset of treatments and may persist in a much enhanced form until its completion, or even later, and are often not satisfactorily relieved by conventional treatments. Complementary therapies such as acupuncture, mind-body techniques, massage, and other CAM methods can relieve symptoms and improve physical and emotional well-being when used in conjunction with mainstream medicine.

IM can be applied to alleviate the side-effects of chemotherapy and radiation in the course of conventional cancer treatments. The patients' emotional well-being and their rate of recovery from chemotherapy are enhanced. Furthermore, integrative treatments during the phases of cancer treatment may help alleviate fatigue and nausea and may reduce other side-effects of chemotherapy[55,71,72]. Here, further research into the simultaneous application of chemotherapy and Chinese herbal treatment is needed to confirm previous findings supporting the benefits of such combined treatments[53-55].

In summary, preliminary findings indicate that CAM and MBM methods may be of value when applied together with conventional cancer treatments from the time the patient receives the diagnosis until the time he or she has completely recovered[27].

Tumor response to high-dose systemic chemotherapies is often transient, with therapy frequently failing when tumor cells become resistant to it. With this is in mind, a model called adaptive therapy was recently proposed[73]. The goal of

adaptive therapy is to enforce a stable tumor burden by permitting a significant population of chemosensitive cells to survive so that they, in turn, suppress proliferation of the less fit but chemo-resistant subpopulations. According to Gatenby[73], host survival can be maximized if the "treatment-for-cure strategy" is replaced by "treatment-for-stability," i.e., if standardized chemotherapy is shifted to an adaptive therapy. If this therapeutic strategy is successful and gains favor, the number of long-term survivals will increase for as long as the cancers are in balance[53]. In this case many patients will require further help from CAM methods to maintain the status of their health and improve their vitality.

In summary, the potential of IM and Integrative Oncology lies in preventing illness and enhancing self-healing abilities, as well as in supporting mainstream treatment in order to speed up recovery processes, minimize side-effects, and thereby reduce health-care costs.

Future of IM

From our experience in clinical work and in training students and physicians, we recommend the following to ensure, safeguard, and further develop the quality and practice of WIM:

Standardization of education: (1) Two years of additional systematic training in IM; (2) Study of the specific aspects and possibilities of combining mainstream and CAM methods; (3) The use of medical guidelines when making decisions and defining criteria regarding the diagnosis, management, and treatment of diseases; (4) Training in the following methods of treatment: neural therapy, acupuncture, traditional healing methods, like cupping and gua sha (刮痧), herbal therapy, fasting and nutritional therapy, techniques of lifestyle modification, and MBM, as well as basic knowledge in manual therapy[74]; (5) Education in how to differentiate between the various fields of application in TCM, especially herbal therapy and qigong; osteopathy; and physical therapy; (6) Training of the physician in healing-orientated communication; (7) Communication of the philosophy of Integrative Medicine; (8) Recognition of the advantages and disadvantages to the patient of CAM, MBM and conventional treatment options, or their combinations; (9) Keeping students and practitioners informed of the current status of CAM and MBM research to acquaint them with the scientific data of applied methods; (10) Postgraduate education: seminars, conferences, summer schools etc.

Standardized Core Curriculum

At the present stage of WIM, definitions and guidelines will have to be systematically developed in order to make certain that the various methods of treatment are safe and appropriate. Also, a system must be established to standardize the quality of education and treatment[16]. In this way, the highest quality of medical care by physicians will be ensured.

Development of Clinical Education

In a clinical setting each patient should be discussed according to the principles of WIM in a patient conference that includes a multidisciplinary team of physicians, nurses, mind/body instructors, and other health care professionals.

Research Program

In addition to randomized-controlled trials (RCT), new research methodologies will be required to evaluate healing processes[75]. As further research in IM is urgently needed, a close connection between research and clinical facilities needs to be established. Their interaction will serve to expand the field of research. In this context, it will also be important to discuss new funding models. Another future goal could be to obtain public funding for research purposes. Possible donors could be insurance companies, governmental institutions or private donors and foundations.

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