

Yin-Yang Balance Concepts for Clinical Diagnosis and Treatment: An Integrated View of Chinese Medicine, Anesthesiology, and Quantum Mechanics

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Abstract

The integration of Chinese and Western medicine not only allows people to better understand themselves, but also provides new and better ways to diagnose and treat diseases. The involvement of quantum interactions in the regulation of anesthetic effects, as well as the compatibility of quantum mechanical views with the Yin-Yang theory of Chinese medicine, is becoming a new direction in the study of anesthetic mechanisms and their effects.

Combining relevant theoretical advances and clinical practice, we propose the theory of "Yin-Yang balance concepts for clinical diagnosis and treatment: An integrated view of Chinese medicine, anesthesiology, and quantum mechanics". The effect of anesthesia is a reversible process of yin and yang change. The balance of yin and yang in the body is gradually restored after anesthesia. The regulatory network consisting of the nervous system, the autonomic nervous system, and the endocrine immune system is the linchpin and key to balancing yin and yang through anesthetic drugs or methods.

The theory should not only be used to treat disease, but also play a role in diagnosis, medical care, and management of public health emergencies. It is foreseeable that it will be a solid guarantee for the development of human health, medicine and health care.

Keywords

Integrative medicine, Yin-Yang balance, Quantum mechanics, Chinese medicine, Anesthesiology

Basic Concepts of the Yin-Yang Theory

The doctrine of yin and yang is a philosophical and scientific theory that studies the laws of change in the movement of things, and it is a worldview and methodology for people to understand and explain nature [1].

Yin and yang is a generalization of the opposing sides of certain things or phenomena associated in nature,

which is used to explain the two opposing and mutually destructive forces in nature. The interaction of yin and yang drives the creation and change of all things and phenomena in the universe [2]. For this reason, ancient Chinese physicians concluded that "Yin and Yang have their own name, but no form" [3].

The Yin-Yang doctrine states that everything in the universe can be divided into two categories: Yin and yang. Yin or yang alone can be divided into yin (sub-1) and yang (sub-1). Any yin (sub-1) or yang (sub-1) can also be divided into yin (sub-2) and yang (sub-2), and the list is endless [4].

The division of yin and yang is based on sunlight, and anything that corresponds to the sunward side is yang, and the backward side is yin. In general, anything that is active, external, ascending, warm, bright, functional, hyper-functional, etc. is yang. Conversely, that which is internal, falling, cold, obscure, material, declining in function, etc., belongs to yin. The relationship between yin and yang has the following characteristics: Correlation, universality, relativity, divisibility, interaction, opposition, complementarity, balance and transformation (Figure 1) [5-8].

The Yin-Yang Theory in Traditional Chinese Medicine (TCM)

The theory of yin and yang was introduced into the field of medicine by renowned practitioners of ancient Chinese medicine. This doctrine is commonly used to explain the origin and nature of life, the maintenance of physiological functions, the regression of pathology, and the basic laws for diagnosing and preventing disease [2].

The theory of yin and yang is a fundamental and crucial aspect of Traditional Chinese Medicine (TCM).

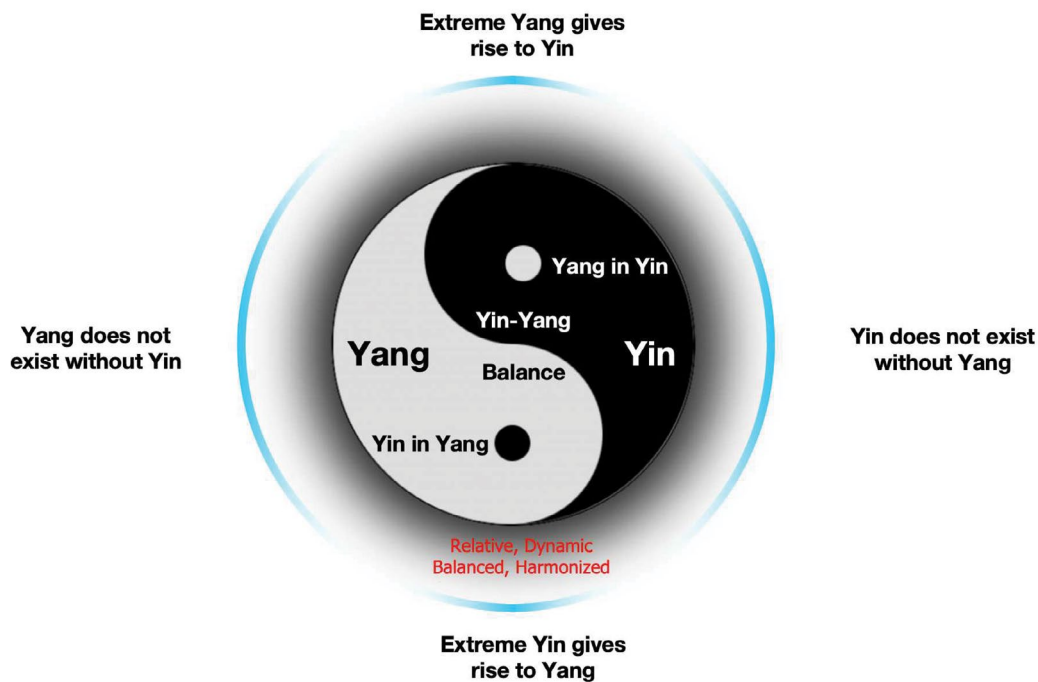


Figure 1: The Yin-Yang model of ancient Chinese philosophy.

The Yin-Yang model of ancient Chinese philosophy includes the following aspects:

Although yin and yang represent two opposite directions, they are rooted in each other. The two sides of the conflict, represented by black and white, are complementary and mutually reinforcing, and it is in this back and forth that the changes and evolution of yin and yang are driven.

A circle represents a thing. The circle is cleverly divided by a curve. The development of yin and yang is not linear, but curved, wavy, and anti-S-shaped. Instead of oscillating on a plane, yin and yang are at the end and beginning of a three-dimensional spiral that moves to a higher level.

It tells us that there is yang in yin and yin in yang, softness in hardness and hardness in softness, you in me and I in you. No matter how the two opposing sides develop with each other, they still coexist in a circle in the end, which looks like a typical dualism.

It has been a guiding principle in clinical practice for thousands of years, helping to understand and master the theoretical system of TCM, and contributing to its formation and development [2,3].

In the human body, yang refers to external, upward, outward, penetrating, invigorating, warm, exciting, and uplifting qualities, while yin refers to internal, inferior, cohesive, calm, cool, moist, and subdued qualities [6-8].

The main elements of the yin and yang doctrine in TCM

Opposites and limitations of yin and yang: According to the theory of TCM, all interrelated things or phenomena in nature, such as heaven and earth, up and down, cold and heat, water and fire, movement and stillness, success and failure, have two aspects of yin and yang. In TCM, yin and yang are believed to oppose, restrict, and repel each other when in conflict, but they are not in a constant state of opposition. Yin and yang promote the change and development of things and maintain the normal life activities of the organism, allowing nature to flourish. Objective evaluations are excluded unless clearly marked as such [5,6].

The dynamic balance of yin and yang in the human body is also not in a static and unchanging state, but is always in motion and change [2]. Under physiological conditions, when yin and yang are in relative dynamic equilibrium, the human body is in a healthy state. If there is an imbalance between yin and yang due to certain factors, the result of the competition between yin and yang will be victory or defeat, and yin and yang will be out of balance. Moreover, an imbalance in which one aspect of them favors victory or defeat will cause disease [1,2,4].

The interdependence of human yin and yang: The human body yin and yang are opposites, but are unified, the mutual root of yin and yang refers to the unity of yin and yang, that is, yin and yang are interdependent, mutually helpful, synergistic role [1,2,4,9]. Generally speaking, each side of yin and yang cannot exist independently of the other, and each requires the other as a condition for its existence. Yin and yang are also a pair of related concepts. If two concepts are not related, or are not two opposing aspects of an entity, yin and yang cannot be used to distinguish their relative attributes and interrelationships. To draw an analogy,

if the top is yang and the bottom is yin, then without the top there would be no bottom, and without the bottom there would be no way to distinguish the top from the bottom. In the case of the human body, there is no material life without the functional activity of the organism, and there is no power for functional activity without the release of material energy [5,6].

The growth and development of yin and yang in the human body: The growth and decay of yin and yang in the human body is always manifested in the process of yin and yang connecting and restricting each other. When one side is too dominant, it inevitably leads to weakness in the other side. The waxing and waning of yin and yang is always in perpetual motion. When this waxing and waning is in a state of relative balance, the body exhibits normal physiological activity. However, when the balance is disturbed, either yin or yang can become stronger or weaker, leading to pathological conditions [9-11].

Mutual transformation of yin and yang in the human body: The transformation of yin and yang in the human body refers to the fact that they can be transformed in opposite directions under certain conditions. Yin can be transformed into yang, and yang can be transformed

into yin. It is the process of quantitative and qualitative changes in the movement and transformation of things [1,2,4].

The transformation of yin and yang occurs in a critical state of qualitative change, that is, the ancient so-called "when things reach an extreme, they can only move in the opposite direction". For example, extreme cold can be transformed into heat, extreme heat can be transformed into cold, and so on.

As far as the human body is concerned, the mutual transformation of substances and energy in the organism, the mutual transformation of excitation and inhibition of physiological activities, and the transformation between yang symptoms and yin symptoms in the process of disease development, and so on, are all concrete manifestations of the mutual transformation of yin and yang [5,6,9].

The doctrine of yin and yang is an important guide to the clinical diagnostic and therapeutic practice of TCM practitioners (Figure 2) [5,12]

Yin and yang can be used to explain the organizational structure of the human body: The

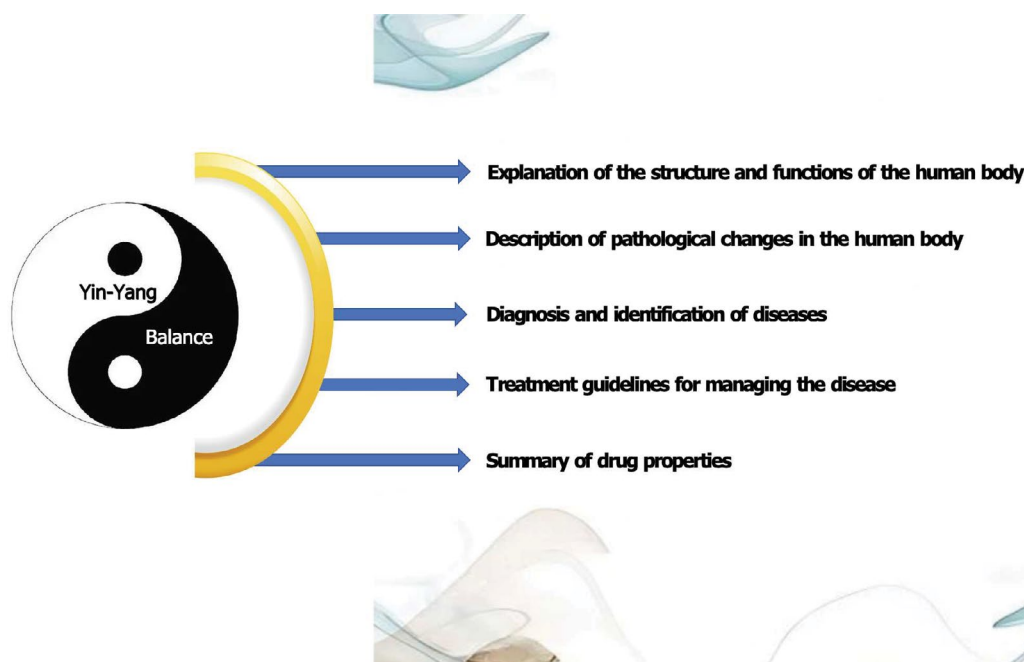


Figure 2: The main elements of the yin and yang doctrine in TCM.

The doctrine of yin and yang in TCM includes the following aspects:

The organizational structure of the human body can be divided into yin and yang attributes according to their location and functional characteristics.

The yin and yang doctrine can be used to summarize the physiological functions and the pathological changes in the human body.

The doctrine of yin and yang can be used to diagnose and identify diseases.

The doctrine of yin and yang can be used to guide the treatment of diseases, not only to establish the principle of treatment, that is, to adjust yin and yang, to compensate for imbalances, and to restore the balance of yin and yang.

The doctrine of yin and yang can be used to summarize the properties of drugs and serve as a basis for the clinical use of drugs.

various organizational structures of the human body can be divided into yin and yang attributes according to their location and functional characteristics [5,12].

Yin and yang can be used to summarize the physiological functions of the human body: The maintenance of human life activities and normal physiological functions is the result of the reconciliation and balance of yin and yang, which is the concrete embodiment of the relationship between yin and yang and the unity of opposites [5,12].

Yin and yang are used to describe pathological changes in the human body: Yin and yang include both the positive qi and the evil qi of the human body. Positive qi has two parts, yin essence and yang essence, and evil qi also has two categories, yin evil and yang evil. Yang evil can cause yang exuberance and yin damage, which in turn leads to the symptoms of heat in TCM. Yang evil can cause yang exuberance and yin damage, which in turn leads to the symptoms of heat in TCM [5,12,13].

If yang is deficient and insufficient to control yin, it will cause a symptom of imaginary cold in TCM. If yin is deficient and insufficient to control yang, it will cause a symptom of deficiency heat in TCM. Therefore, the imbalance of yin and yang is the root cause of all diseases [5,13,14].

Yin and yang are used in the diagnosis and identification of diseases: Yin and yang can summarize the location and type of lesions and the characteristics of various symptoms, thus serving as a platform for diagnosis.

Lesions can also be classified into yin and yang according to their color. If the color is light, the nature of the lesion is yang; if the color is dark, the nature of the lesion is yin.

Voice and breath can also be divided into yin and yang. When they are high and loud, with many words and excitement, it is usually the actual evidence of yang heat; when they are low and weak, with few words and quiet, it is usually the evidence of yin cold deficiency [5,7,9].

Pulse in TCM refers to the speed, strength and depth of the pulse (usually the radial artery is used). The condition or type of pulse is one of the unique terms in TCM, referring to the image and dynamics of the arterial pulse, and is one of the bases for identifying evidence in TCM. The pulse can also be categorized as yin or yang. If it appears to be floating, large, flooding, slippery, or counting, it is categorized as yang; if it appears to be sinking, small, fine, astringent, or late, it is categorized as yin [15,16].

Yin and yang are used to guide the treatment of disease: Yin and yang are used in the treatment of disease and can be used to determine the principles of

treatment for a disease. By balancing yin and yang, the TCM practitioner restores the balance of yin and yang by eliminating the imbalance and curing the disease [5].

Yin and yang are also commonly used to summarize the properties of drugs as a basis for clinical use: Chinese medicine categorizes drug properties into several types: Cold, hot, warm, and cool. Cold and cool drugs are yin in nature and treat yang symptoms. Warm and hot drugs are yang in nature and treat yin symptoms [17].

Chinese medicine classifies the taste of drugs into sour, bitter, sweet, pungent, salty, and light. Pungent, sweet, and light flavored drugs are yang in nature and are often used to treat yin symptoms; sour, bitter, and salty drugs are yin in nature and are often used to treat yang symptoms [18,19].

Traditional Chinese medicine classifies the tendency of drugs into ascending/descending and floating/sinking. The tendency of the ascending and floating type of drugs is yang, which has the effect of ascending yang qi, dispersing wind and cold, and opening the orifices; the tendency of the descending type of drugs is yin, which has the effect of clearing heat, cathartic, removing stagnation, and eliminating stagnation [18,19].

Quantum Mechanics and the Yin-Yang Theory of TCM

Recent studies have confirmed the possibility that the quantum mechanical view is consistent with the basic principles of TCM [20]. The "ontological hypothesis" states that the underlying "universal consciousness operates at every level of reality" [21,22]. This action is expressed in perception "at all levels, in all objects. For example, the individual reflects the universe and vice versa.

In a sense, yin and yang is just another expression of the above statement. Self-awareness and Chinese healing can change the fundamental balance of being, and healing and spirituality are not absolute opposites. As Chinese medicine recognizes, yin and yang complement each other. The bio-electromagnetic field that dominates human life activities is a highly automated, programmed, steady-state holographic network system [5,19,20]. Under the regulation of the cerebral cortex and higher centers, the network can communicate with various tissues. Bio-electromagnetic waves inside and outside the cell oscillate and circulate in a cyclic flow. Recent studies suggest that the network is a continuous channel with sub-wave duality [21,22].

Chinese medicine proposes that "Yin in Yang, Yang in Yin", forming "Yin and yang follow each other, internal and external appreciation, like the ring without end" channel, that is, "the channels of energy channels in TCM appreciate each other, like rings without end (idiom); they all have their points in common" [4-6,9,12].

From the above, it is hypothesized that the yin and yang in Chinese medicine theory may have the characteristics of "quantum" wave-particle duality and its related transformations.

Comparing the core contents of TCM theory and quantum theory, it is not difficult to see that both take the holistic view as their philosophical idea. Qi in Chinese medicine serves as a mediator between the human body, the natural world, and the human mind, while quantum theory similarly connects mind and matter through the principle of immensity [4-6].

The central reasoning tool of TCM theory is the doctrine of yin and yang, while the central idea of quantum theory is complementarity. Both the theory of complementarity and the doctrine of yin and yang recognize that things have this concordance and that it is rooted in all things natural. It reflects the original intrinsic connection between the principle of complementarity and the doctrine of yin and yang [4-6,20]. Therefore, the two theories are compatible in terms of the core content of TCM theory and quantum theory.

Quantum Mechanics and Anesthesia

The scope of anesthesiology has been gradually developed with the development of modern medicine. With the development of surgery and anesthesia, the modern concept of anesthesiology has acquired a broader meaning [23].

The involvement of quantum interactions in the regulation of anesthesia and neurological function will provide a new direction for understanding the mechanisms of anesthesia and its therapeutic effects [24,25].

Biological quanta and photons emitted by cells during specific metabolic processes have been identified in neural tissues and hypothesized to be auxiliary carriers of neural information transmission [26-31]. Anesthetics have been shown to induce unconsciousness by modulating quantum interactions between neurons [25,31-34]. Therefore, the study of biophotonic mechanisms in the context of information conversion in neural function and anesthetic processes is a meaningful and novel direction.

In *Drosophila* neurons, Turin, et al. [35] reported that xenon, sulfur hexafluoride, nitrous oxide, and trichloromethane caused rapid increases in electron spin content at different times and magnitudes. These spin changes are caused by perturbations in the electronic structure of proteins by general anesthetics. Density functional theory also shows that general anesthetics perturb and expand the occupied molecular orbitals of a nine-residue α -helix [35]. The above studies suggest a possible link between intracellular spin motion quanta,

bioelectronic current, anesthetics, and neural function.

Another experiment confirmed the interaction of sevoflurane and isoflurane with 800 nm entangled photon pairs [24]. The anesthetic potency of xenon 129 (Xe) is lower than that of xenon isotopes with zero nuclear spin (Xe132, Xe134) because their anesthetic properties can be partially antagonized by the nuclear spin properties of xenon 129 (Xe) [36]. This suggests that the quantum mechanical properties of halogenated inhalational anesthetics mediate their anesthetic effects and that inhalational anesthetics may interfere with nuclear spin regulation during the induction of consciousness.

In addition, particle-wave duality in astrocytes has been shown to contribute significantly to the generation of three energy fields or currents in the brain [37]. The above evidence suggests that quantum effects operate in a quantum manner in living systems, particularly in certain aspects of neuronal function, and mediate anesthetic effects [38].

The identified role of anesthesia on consciousness and the incipient anesthesia-quantum interactions provide a definitive basis for a theory of the Yin-Yang regulation of anesthesia.

The Concept of Yin-Yang Balance in Anesthesia

The yin-yang balance concept in anesthesia

The regulatory network (abbreviated as the NAEI network) consists of the nervous system, the autonomic nervous system, the endocrine system, and the immune system. A large body of literature and theory has demonstrated that the NAEI network is the lynchpin and key to anesthesia [39-43]. The autonomic nervous system (sympathetic, parasympathetic) is the common interface where the nervous, endocrine and immune systems regulate each other [44-51].

Combining the above theoretical advances with clinical practice, we propose the concept of "Yin-Yang balance in anesthesia". Anesthesia is a discipline focused on functional regulation, and the effects of anesthesia are a reversible process to restore yin and yang. Yin-Yang balance can be used to explore "opposites and constraints" in the broader context of anesthesia.

The NAEI network is the basis for anesthesia's regulation of Yin-Yang balance. Anesthesia maintains Yin-Yang balance homeostasis by maintaining and regulating the body's NAEI function, helping the body to survive traumatic stress and restore or reestablish homeostasis and balance as much as possible. Conversely, the underlying condition of the NAEI (especially NAEI related diseases) can affect the effectiveness of anesthesia in regulating the Yin-Yang

balance by interfering with the energy field or flow, which in turn affects anesthesia outcomes and patient recovery.

The concept of yin-yang balance in anesthesia consists of the following elements

Yin and yang have quantum properties and are often in a superposition of entangled states. Anesthesia regulates the balance of yin and yang in the body by influencing quantum entanglement and wave-particle duality, and by intervening in the energy field or flow.

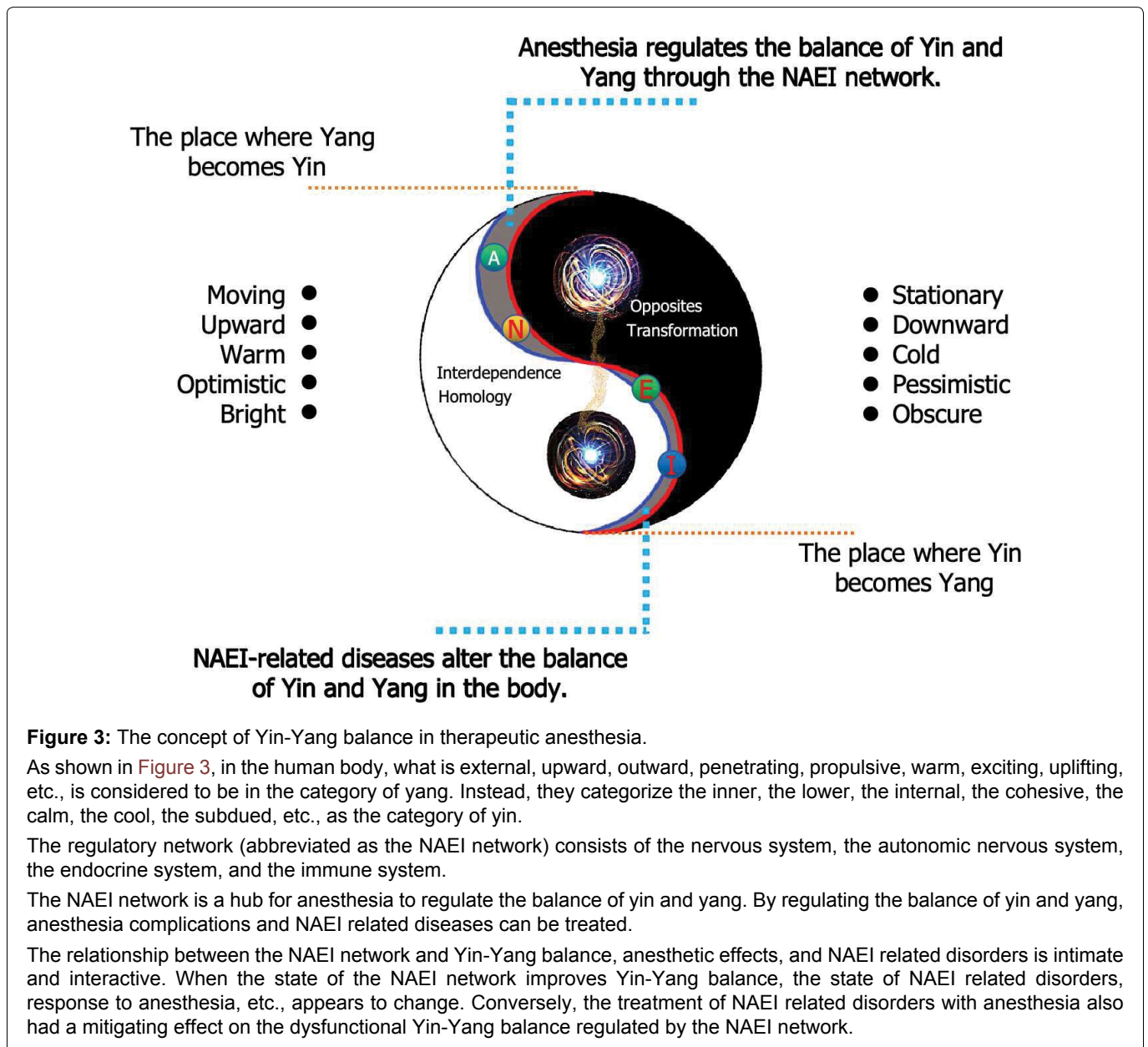
The NAEI network is a hub for anesthesia to regulate the balance of yin and yang. By regulating the Yin-Yang balance, anesthesia complications and NAEI related diseases can be treated (Figure 3).

The relationship between the NAEI network and the Yin-Yang balance, the effect of anesthesia, and NAEI related diseases is intimate and interactive: while

the state of the NAEI network improves the Yin-Yang balance, the state of NAEI related diseases and the response to anesthesia, etc., appear to be altered. Conversely, the anesthetic approach to the treatment of NAEI related diseases also has an alleviating effect on the dysfunctional Yin-Yang balance regulated by the NAEI network.

Yin-Yang balance can be used to explore "opposites and constraints" in the broader context of anesthesia (including sleep, analgesia, drug dependence and withdrawal, and stress regulation).

The medicinal properties of anesthetics are usually cold, e.g. the medicinal properties of ketamine are bitter, warm, etc.; the medicinal properties of anesthetic antagonists are usually the opposite. Further studies on the pharmacological properties of other anesthetics or new anesthetics are needed to improve the clinical effects of anesthesia and to treat its complications.



Drug addiction is a chronic disease with peculiar characteristics, and its pathological mechanism in TCM is mainly damage to qi and blood, yin and yang, which manifests itself in a variety of deficiency symptoms in the internal organs. Although Chinese herbal preparations and acupuncture techniques have achieved good clinical efficacy for narcotic addiction and withdrawal, they are still in their infancy and deserve in-depth study.

Most anesthetics and anesthetic techniques can interfere with energy cycles and quantum homeostasis, resulting in a state of yin bloom and yang decline, and a reduction in the body's stress response. During the awakening period, the inhibitory effect of anesthesia gradually disappears, and the anesthesia-induced yin bloom and yang decline appear to recover to varying degrees.

The balance of yin and yang is involved in the whole process of anesthesia. Theories of qi and blood, yin and yang, and kidney elements are involved in perioperative stress, anesthetic effects, awakening, and recovery. The identification theory of "when positive qi exists in the body, bad qi cannot enter" provides new ideas for studying the mechanism and prevention of anesthesia and surgical complications.

Previous studies have focused on the effects of the patient's basal state and the surgical procedure itself on qi and blood, yin and yang, and kidney elements, and in the future it will also be important to study the effects of anesthesia methods and drugs on them, and the role in the treatment of related complications and NAEI related disorders.

In the practice of ideal anesthetic state, comfort anesthesia, pain diagnosis and treatment, and treatment of NAEI related diseases, etc., it is necessary to consider not only the effects of drugs, treatments, fluid therapy, vital sign monitoring, and depth of anesthesia on the human body and the patient's rehabilitation, but also the effects on the body's Yin-Yang balance and the restoration of yin and yang throughout the perioperative period (Figure 3).

In long courses of chronic pain, chronic insomnia, anxiety, and antipsychotics, Western medicine focuses on the patient's history, weight, age, drug indications, contraindications, and side effects.

Combined with our theories, we recommend that the patient's basic state of Yin-Yang balance be "diagnosed" before treatment, i.e., diagnosed according to the patient's basic physical state, and then the appropriate medications and treatments are selected.

The timing of medication is in accordance with the concept of yin and yang doctrine of traditional Chinese medicine and the regularity of yin and yang changes in the human body, which is based on the influence of yin and yang changes in nature on the physiological and

pathological rhythms of the human body, Combined with the rise and fall of the human body's qi and the operation of ying and wei, taking into account the rising, falling, floating, sinking of yin and yang, and the four qualities of medicine, namely cold, hot, warm and cool, supporting the right and dispelling the evil, as well as the location of disease and evil, etc.. And by choosing the optimal time for treatment. And by choosing the optimal time for the administration of drugs to maximize the therapeutic effect, reduce the toxic side effects and lower the dose of treatment.

In the course of treatment, the development and change of the disease and the law of change of yin and yang are constantly observed, and timely adjustments are made to make the treatment more precise and effective.

In addition, this theory also emphasizes preventive health care and the active use of Yin-Yang balanced health care methods in people's daily lives to achieve physical strength, psychological balance, mental pleasure and other aspects of auxiliary treatment and health care effects.

The holistic view is one of the fundamental features of anesthesiology in the new century. Previous theories have emphasized the effects of anesthesia and surgery itself on the body. Future research should focus on the interaction between anesthetic effects and Yin-Yang balance, and use this interaction to diagnose and treat surgical and anesthetic complications, NAEI related diseases, etc. This part will be discussed in detail later.

Preliminary interpretation of the "yin-yang balance concept in anesthesia"

Yin and yang in anesthesia (Figure 4): In the physiological state, yin and yang are antagonistic and interdependent in the human body. Yin and yang maintain a certain dynamic balance to maintain the normal functioning of the body.

Stress or trauma leads to yin and yang dysfunction, and the body manifests a state of Yin-Yang imbalance. Anesthesia reduces the body's stress response to surgical or traumatic stimuli by decreasing NAEI excitability, which in turn down-regulates the level of yin and yang homeostasis, inhibiting the body's functions to some extent, and when the stress is over, the anesthesia is superficially reduced and yin and yang homeostasis is restored.

During wakefulness, yang energy is strong, yin energy is relatively inhibited, and the vitality of the body manifests itself in a state of wakefulness. During anesthesia, yin is in the ascending and yang is in a state of relative inhibition, and the body's vitality is suppressed accordingly. During the induction period of anesthesia, as the anesthesia deepens, yang is gradually suppressed, and the body's vitality changes

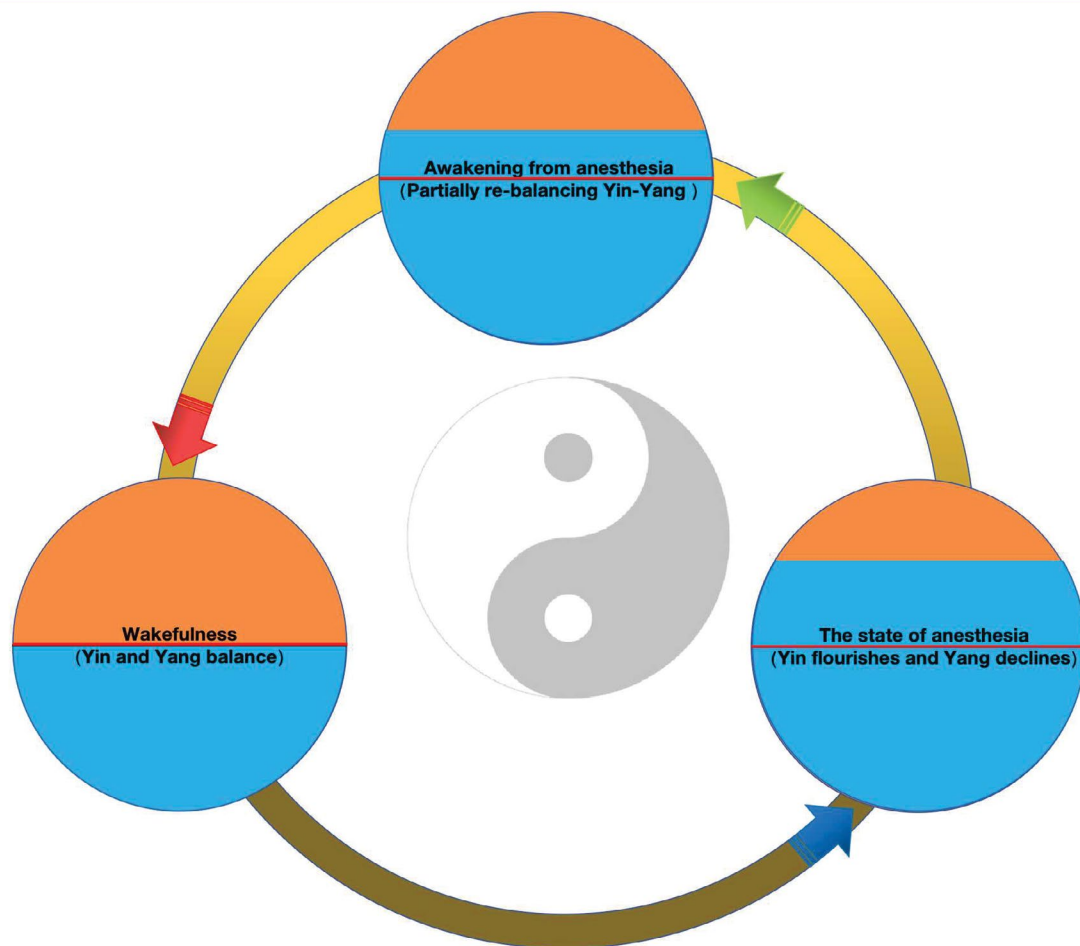


Figure 4: The changes of Yin-Yang in anesthesia.

Figure 4 describes the altered Yin-Yang balance of patients in the awake state, the anesthetized state, and during recovery from anesthesia.

In the waking state, yin and yang maintain a certain dynamic balance to maintain the normal function of the body.

Anesthesia inhibits bodily functions to a certain extent. As anesthesia deepens, yang qi is gradually suppressed, and the body changes from excitement to inhibition.

From anesthesia to awakening, the body shifts from inhibition to excitation, that is, yin is weakened and yang is restored. The balance of yin and yang in the human body has not been completely restored to the preoperative state, that is, the anesthesia has not completely disappeared.

from excitement to inhibition. Yang is weakened and yin is strengthened. From anesthesia to awakening, as the anesthesia becomes less intense, yang is gradually restored, and the body's vitality gradually shifts from inhibition to alertness, that is, yin is weakened and yang is restored. The process of waking up and falling asleep parallels the changing homeostasis of the Yin-Yang balance.

Yin and yang in therapeutic anesthesia: If the yin and yang imbalance caused by various disorders persists over a long period of time, the internal organs will continue to malfunction or even develop organic changes, eventually leading to chronic diseases.

By affecting the NAEI, anesthetic drugs or techniques can effectively regulate the imbalanced state of yin and yang, which in turn can lead to the treatment of various related diseases.

The Holistic View is a Fundamental Feature of Anesthesiology in the New Century

There are two basic features of the theoretical system of TCM, one is the holistic concept [52] and the other is the identification of evidence [53].

Holistic concepts

The holistic concept of TCM emphasizes the unity and integrity of the human body and its interrelationship with nature, as well as the unity of man and nature.

The holistic concept is that the human body is an organic whole, and that the various components that make up the human body are structurally inseparable, functionally coordinated and complementary, and pathologically interacts with each other [52].

The human body is an organic whole:

(1) Physiological integrity

There are two aspects of physiological integrity. The first is the view of the unity of the five organs, which emphasizes that the various tissues that make up the human body are structurally and functionally complete and unified. The second is the view of the unity of form and mind, which emphasizes the combination and unity of form and mind [54].

(2) Pathological wholeness

In analyzing the pattern of occurrence, development and change of diseases, TCM focuses on the overall pathological reaction caused by local lesions, and analyzes the overall reaction of local lesions from the perspective of the whole [55].

(3) Holistic view of diagnosis and treatment

The human body is an integrated whole of body and mind. Physical disease can cause mental disease, and mental disease can cause physical disease. In the treatment of diseases, TCM emphasizes the simultaneous treatment of physical and mental diseases. In terms of health maintenance, TCM tends to regulate the human mind and body together [56].

Unity between man and the natural environment

(1) The influence of the natural environment on human physiology

Both the natural environment and the geographical environment have many effects on the human body, such as spring birth, summer growth, fall harvest, winter storage, altitude, regional climate, soil and water, and products, etc., all of which affect and are related to the physiological activities of the human body and the diet. All of these affect and are related to the physiological activities of the human body and dietary habits [5,57,58].

(2) Influence of the natural environment on human diseases

Different climatic environments can be characterized by different types of morbidity, such as wind diseases in spring, heat-related diseases in summer, drought-related diseases in autumn, cold-related diseases in winter, and so on [5,57,58].

The unity of human health and social environment:

The social environment can indirectly or directly influence human health and the development of diseases [59,60]. In the field of health and wellness, studying the effects of social factors on human health and disease is important for prolonging life and improving health status [59,60].

Dialectical treatment in TCM

Basic concepts of dialectical treatment: As one of

the basic principles of TCM, the process of dialectical treatment is the process of recognizing and solving diseases that runs through the entire process of prevention and health maintenance [53].

The essence of dialectical treatment is, first, to distinguish the differences and similarities of evidence, and second, to distinguish the differences and similarities of disease. There is a difference between "different treatments for the same disease" and "different treatments for the same disease" in clinical treatment. The correct use of dialectical treatment should recognize not only that a disease may present several different types of evidence, but also that different diseases may present the same type of evidence in the process of their development [5,11,12,61,62].

Integrating Western and Chinese medicine

Western medicine: Western medicine is medicine developed on the basis of modern science and technology, a combination of anatomy, chemistry, physics, mathematics, mechanics, and other disciplines. Western medicine is characterized by the fact that everything must be procedural and standardized, and anything that does not conform to the procedures and uniform standards is not allowed. As a result, Western medicine has uniform educational standards, medical treatments, and the use of drugs [63].

Traditional Chinese Medicine: TCM, on the other hand, is a medical technique and system summarized by the ancient Chinese nation over its long history, and is a combination of plant, animal, mineral and other medicines and disciplines such as qigong, astronomy, meteorology and philosophical thinking. The essence of TCM is the identification of dialectical treatment and the use of medicine. The process is very flexible, non-normative, and non-standardized. Therefore, TCM is about flexibility in the treatment of disease and is the exact opposite of the standardization and normalization of Western medicine [64,65].

The strengths of TCM, on the other hand, lie in its dialectical and personalized treatment. The natural properties of Chinese medicines and the complementary therapeutic methods used in the course of TCM treatment, such as acupuncture, cupping and moxibustion, can alleviate the patient's pain to a certain extent and enhance the therapeutic effects. In addition, TCM focuses on prevention and adjusting the balance in the patient's body to prevent the onset and recurrence of disease [64,65].

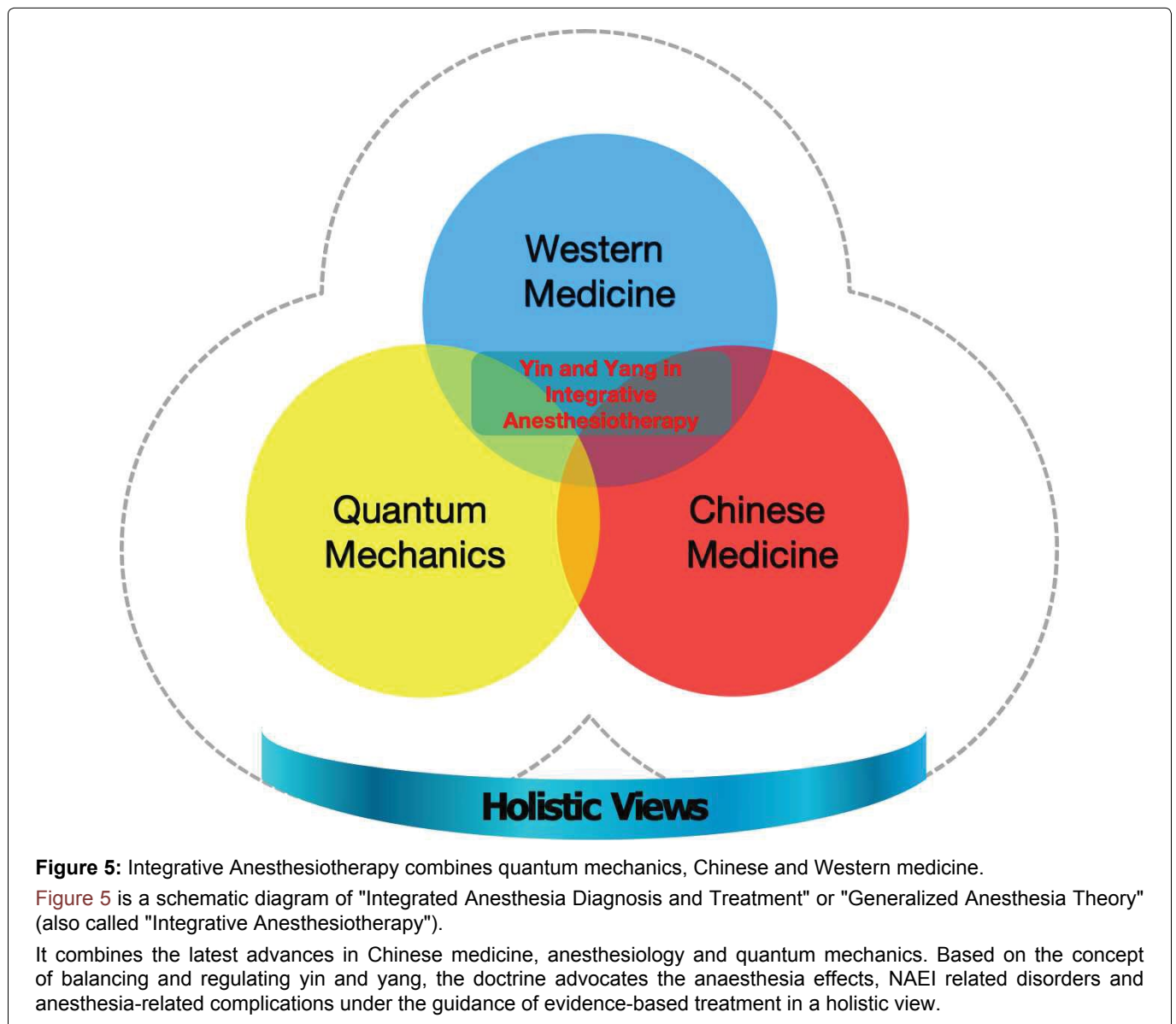
Integration of Chinese and Western medicine will be a natural result: Western medicine and Chinese medicine are two completely different medical systems. Both are important medical systems, each with its own advantages and disadvantages [4-6].

In the actual perioperative treatment, appropriate treatments should be selected according to the patient's condition and specific situation, which can complement the strengths and weaknesses of different medical systems, improve the treatment effect, and help the patient recover his health as soon as possible, in accordance with the concept of accelerated rehabilitation surgery and the concept of perioperative medicine. From the above, it can be seen that the integration of Chinese and Western medicine will be a natural result [63-66]. This integration will not only lead to a better understanding of Western and TCM, but also to new and better ways of diagnosing and treating diseases [66].

Perspectives on the future of therapeutic anesthesia in the context of integrating Chinese and Western medicine (Figure 5)

The concept of therapeutic anesthesia: It is generally accepted that anesthesia is a reversible inhibition of the

function of the central and/or peripheral nervous system produced by drugs or other means and that this inhibition is primarily characterized by loss of sensation, especially pain. Anesthesia is derived from the Greek word *narkosis*, as the name suggests, numbness for numbness and paralysis, drunkenness for drunkenness and stupor. Therefore, the meaning of anesthesia is the use of drugs or other methods to make the patient completely or locally temporarily lose sensation to achieve the purpose of painless surgical treatment. Anesthesiology is the use of the basic theory of anesthesia, clinical knowledge and technology to eliminate the patient's surgical pain, to ensure the safety of patients, to create good conditions for the operation of a science. Now, anesthesiology has become a specialized independent discipline in clinical medicine, mainly including clinical anesthesiology, emergency resuscitation medicine, intensive care monitoring and treatment, pain diagnosis and treatment and other related medicine and its mechanism of research, is a study of anesthesiology, analgesia, emergency resuscitation and intensive



care medicine, a comprehensive discipline. Among them, clinical anesthesia is the main part of modern anesthesiology [67,68].

The definition of anesthesia is constantly changing as anesthesiology evolves. In modern anesthesia, it is no longer possible to have a simple and unified definition of anesthesia. Therefore, Professor Yu made a new definition of anesthetic state, which includes two levels of meaning, i.e. anesthetic state in philosophical sense and anesthetic state in practical sense. Prof. Yu also proposed that anesthesiology represents the future direction of therapeutic anesthesia and is defined as the direct treatment of primary diseases by anesthesiologists using anesthesia methods, techniques, drugs, and anesthesia equipment [67,68]. It is currently believed that the mechanism of therapeutic anesthesia may include: Immune stress inhibition, microcirculation regulation, sleep cycle regulation, autonomic regulation and so on [67-76].

At present, therapeutic anesthesia is in the exploratory stage, and its therapeutic theoretical basis is still unclear. The vast majority of anesthesiologists believe that anesthesiology is a synthesis of various techniques, and they unconsciously believe that anesthesiology is simply the same as therapy. In practice, anesthesiologists should improve their diagnostic and differential diagnostic skills. Based on the above, we propose the concept of "diagnostic and therapeutic anesthesia", also called anesthesiotherapy.

Anesthesiotherapy should be based on classical anesthesia theory and the concept of Yin-Yang balance under the guidance of evidence-based diagnosis and treatment. Similar to the TCM dialectical diagnosis and treatment idea and the Western diagnostic and therapeutic thinking, the anesthesiotherapy is also the same, first of all, we should ask about the condition, and then use the TCM diagnosis method and the classical Western diagnostic thinking to identify the evidence in detail, and also combine the characteristics of the patient's condition, the duration of the disease and the characteristics of the drugs to take personalized diagnosis and treatment measures, so as to optimize the patient's treatment and improve the level of prevention and rehabilitation.

At present, anesthesiotherapy is in the exploratory stage, but we have reason to believe that with the gradual application of anesthesiotherapy in the clinical promotion of the future of anesthesia therapeutics, will certainly shine, which is an important step toward a truly clinical discipline of the Department of Anesthesiology.

Reflections on the Development of Anesthesiology in the Context of Integrating Chinese and Western Medicine: In recent decades, the techniques and methods of anesthesia therapy have made great

achievements in the fields of anticancer treatment [69], insomnia treatment [70,71], acupuncture analgesia [72,73], psoriasis treatment [74], perioperative anesthesia management and postoperative rehabilitation [75], and COVID-19 treatment [75,76]. The concept and technology of Chinese medicine have added new elements and vitality to the development of anesthesia technology in China and the world.

As the state attaches more and more importance to the development of TCM concepts and techniques, anesthesiology as a field combining traditional medicine and modern medicine has received more and more attention, and therefore we propose another new concept, namely integrative anesthesia diagnosis and therapy (abbreviated as integrative anesthesiotherapy). Integrative anesthesiotherapy should not only be used to treat diseases, but also play a role in the diagnosis, medical care and management of public health emergencies.

The essential components of integrative anesthesiotherapy construction are as follows:

(1) Strengthen the development of talents and teams in integrative anesthesiotherapy

- 1) To ensure effective education and training, it is crucial to establish a clear concept and position that balances the needs of individualized and standardized approaches.
- 2) The teaching approach should integrate theory and practice and be adapted to the needs of patient diagnosis and treatment. In addition, the system for recruiting and training medical students in this specialty should be improved.

(2) To improve the integrated anesthesia diagnosis and treatment system

1) The goal is to accelerate the modernization of the integrated anesthesia diagnosis and treatment system, while improving diagnosis and treatment capabilities. Improve disease prevention and treatment capabilities and research standards. Demonstrate and promote the use of integrative anesthesiology for diagnosis and treatment.

2) In the national medical system for the prevention and treatment of infectious diseases, we will continuously improve our capability and expertise in integrative anesthesiology to effectively respond to new and unforeseen infectious diseases and public health emergencies.

(3) Improve the research system of integrative anesthesiotherapy

- 1) In order to improve the objectivity and persuasiveness of research results, it is

recommended to further strengthen the methodological design of clinical research in integrating Chinese and Western medicine. This can be achieved by optimizing the intervention program and efficacy evaluation indices, and improving usability.

- 2) Improve the construction of integrative anesthesia scientific research that complements evidence-based medical research and real-world research.

(4) Expand the international influence of integrative anesthesiotherapy and strengthen foreign exchange and cooperation

Conclusion

The theory of "Balancing Yin and Yang in Integrative Anesthesiotherapy" aims to integrate the strengths and avoid the weaknesses of TCM and Western medicine. This reflects the combination of a holistic view with systems biology, individualization, and precision medicine. From another perspective, it may be possible to use modern language to clarify the scientific connotation of TCM and remove the mystery of "knowing what is right but not knowing what is wrong."

It is possible that the theory will lay a solid foundation for improving national health and developing medicine and health care. At present, it is at an early stage, and its meaning and scope are still being developed and structured. Although it has a promising future, there is still a long way to go.

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