

## Homeopathy & Ayurvedic Medicine

Review Article Open Access

## Review on Current Situations of TCM Syndrome Study

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#### **Abstract**

The concept of "syndrome" is the core of TCM basic theory. This article reviews in terms of the concept and standardization of "syndrome" as well as syndrome differentiation methods. We lay special stress on expounding "syndrome" concept, standardization for diagnosing syndromes, its biological basis, and combination of macro syndrome differentiation with micro syndrome differentiation. Many experts have put a lot of energy to do research work, and made some achievements in above fields. But so far, the existing standardization of the syndrome has not yet been united, so there are still many problems to be solved about the specification of the syndrome. The authors also consider that we should pay attention to the study of biological basis of TCM syndrome in application of "omics" methods in the future.

**Keywords:** TCM syndrome; Standardization of syndrome; Macro syndrome differentiation

Treatment based on syndrome differentiation is a characteristic of Traditional Chinese Medicine (TCM) and also the essence of clinical diagnosis and illness treatment in TCM. "Syndrome" there into is an important constituent part of Treatment based on syndrome differentiation in TCM and also a terminology in TCM. The study on "syndrome" is the core of TCM basic study. This article reviews in terms of the concept and standardization of "syndrome" as well as syndrome differentiation method system.

## Study on "Syndrome" Concept

"Syndrome" is unique understanding to the illness in TCM. Before Jin and Yuan Dynasties, the connotation had been determined, i.e. pathogenesis. The concept of "Syndrome" underwent a series of evolution with respect to its connotation and semantic meaning, but the connotation did not change fundamentality.

China TCM Theory Collection Seminar stipulated in 1984 that: "syndrome" represents syndrome, "symptom" represents symptom, and "illness" represents "disease" [1]. The Seminar cleaned up and carried out the preliminary examination of 77 viscera syndromes two years later, and meanwhile confirmed the second batch of 121 standard syndromes [2]. In 1990, national TCM syndrome standard seminar was held in Changsha in which the nature of some stage in the whole process of syndrome reflecting diseases was put forward, i.e. it was composed by factors such as pathogenic factor, location of disease, patients' condition, disease nature and pathogenesis [3]. The syndrome concept and the related definition were defined further in National TCM Diagnosis Meeting in 1991 [4]. The meeting raised that syndrome was a reflection of the nature of some stage in the process of disease occurrence and evolution. Syndrome uncovers pathogenic factor, location of disease, patients' condition, disease nature and etc. to a different extent with a group of related symptoms, which provides basis for the treatment. The explanation to the above concept was modified in 2004 according to the experts' opinions of TCM Certification Terminology Commission. "Syndrome" is a summary of the nature of location of disease, patients' condition, disease nature and disease-resistant capacity in some stage in the disease process. Syndrome: the representation of syndrome, i.e. the reactive status of organic connections of location of disease, pathogenic factor, disease nature, patients' condition and disease-resistant capacity in some stage in the disease process and its representation is the symptom and sign which can be observed clinically [5].

In TCM, syndrome is of the most appropriate carrier format related to disease essence finally obtained with the knowledge to objective target essence deepening from the initial representation. And it is also the optimum language expression from about the essence laws of human diseases in TCM.

Each scholar put forward a lot of various viewpoints. Generally speaking, the elaboration on syndrome concept can be divided into the following aspects roughly.

### Syndrome is the reactive state

Wei [6] thinks that "syndrome is the holistic reactive state of organism against the pathogeny and the reactive state of diseaseresistant regulation and control. Syndrome has characteristics of macroscopic quality, integrity, dynamics, periodicity, materiality, information, relative ambiguity and generality and relative specificity and sensitivity." Zhang [7] also considers that, "this reaction is substantially holistic and sometimes is local. It can be influenced by nature, society, psychology and physique. It belongs to the pathological diagnosis of traditional Chinese medicine science." Some scholars put forward that, "we cannot simply emphasize that syndrome is the reflection of staged essence of diseases, while ignoring the ambient environment of patients which is an important aspect. Normative syndrome is not only a disease model of traditional Chinese medicine science, but also a specific diagnosis concept of tradition Chinese medicine. Syndrome is the reflection of a certain stage in the generating and developing process of diseases and that of the essence of specific internal and external environment where patients are in at that moment [8]."

### Syndrome is the essence of diseases

The view point of "syndrome is the essence of diseases" is generally

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Received May 02, 2013; Accepted May 22, 2013; Published May 30, 2013

Citation: Kou MJ, Zou XJ, Chen JX (2013) Review on Current Situations of TCM Syndrome Study. J Homeop Ayurv Med 2: 122. doi:10.4172/2167-1206.1000122

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acknowledged. Explanations and understandings of syndrome from majorities of scholars do not go beyond the definition of "syndrome is the reflection of the essence of diseases in a certain stage". Ouyang [9] thinks that "syndrome is the reflection of the essence in each stage of the developing process of diseases. It reveals the primary causes, secondary causes and invasion part of diseases in a certain stage with a group of related pulse diseases." Li [10] thinks that "syndrome is composed of symptoms, but it is not a simple addition of a number of symptoms; instead, it grasps dialectical indexes [symptoms] with an essential meaning through phenomenon and makes its internal relations clear, thereby revealing the essence of diseases." Kuang [11] considers that "Syndrome is a comprehensive manifestation of inordinate correlations between holistic characteristics of physique reaction and the environment, the same and zang-fu and meridians, the same and cells and between cells and body fluids under the function of pathogenic factors; it is an essential reflection that living matters have phases in the process of diseases; it is a holistic fixed reaction form based on clinical function changes."

### Latest research on syndrome conception

Many a scholar conveys the conception of syndrome in modern science reveals profoundly the connotation of syndrome from a new aspect and gives an interpretation on the conception of syndrome by combining the modern multidisciplinary and TCM theories. Academician [12-14] gives a new interpretation on the conception of syndrome. He thinks that syndrome is a summarization on the holistic reactiveness of pathophysiological changes of a diseases, which is a complicated system with multi-dimension, multistage and multivariety; syndrome has characteristics of interior-excess and exteriordeficiency, dynamic space-time and multidimensional boundary and appearance; it has something in common that lies the kernel of interior-excess and exterior-deficiency in which excess refers to a most vital content reflecting the important part of pathogenesis of a certain syndrome, and common symptom information which a group of patients show in a particular process of pathological changes and it is the basis of intervention; deficiency refers to a specific individual symptom information by a certain patient, and has a special influence on intervention principles and methods. Interior-excess refers to a general character contained in several characters; exterior refers to a combination of overt expression of individual symptoms; Dynamic space-time refers to the development and change of syndrome; syndrome is a combination of a certain point of time and state, which shows that as time goes on, the state is changing and as a result syndrome will change from one type to another; multidimensional boundary and appearance refers to the composition and interrelationship of syndromes; dimension refers to a variety of factors constituting syndrome; appearance refers to the appearance which syndrome shows to be observed by doctors; boundary refers to the signs differing one type of syndrome from another; the characteristics of syndromemultidimensional boundary and appearance can be divided from interior-excess and exterior-deficiency and dynamic space-time, but not independent because they all run through syndrome.

Li [15,16] considers that syndrome shows the high dimensionality among three characteristics of interior-excess and exterior-deficiency, dynamic space-time and multidimensional boundary and appearance. That is the high dimensionality of syndrome diagnosis data, syndrome factors, syndrome diagnosis methods and the characteristics of changing with time of syndrome evolution. From the aspect of network, he explores the syndrome biology basis, and sets a research frame comprehending the relationship between diseases, symptoms and

prescriptions according to phenotype network-biomolecule network-medicine network, from which he further puts forward a conception of syndrome biomolecule network marks and makes a case study on cold syndrome and heat syndrome.

Shen and Sun [17] puts forward that TCM syndrome refers to that when the organism is impaired by pathogenic factors, the gene expression of some tissue cells regulates and controls abnormally and is induced to yield some protein and peptide such as cell factors, the content and biological activity of which increase relatively or absolutely and therefore destroy the homoeostasis balance of cell factors' network adjustment system, which cause subsequently the correspondent change of nerves and internal system, bring a succession abnormal series of biochemical reactions of pathophysiology in vivo, and therefore cause the change of syndrome appearance and lab illustration, which constitute the "syndrome" in TCM .

It is easy to comprehend that the "syndrome" in TCM constitutes not only the macro-indicators collected in traditional four diagnostic methods, but also the micro-information which cannot be obtained by traditional four diagnostic methods, which shows the complicated feature of TCM syndrome. Complicacy and nonlinearity are the most significant features in the evolution of substance, life and human society. The exploration method on complicated system can not only fill the gap between natural science and human science, but also reduce the distance between western culture and eastern culture, meanwhile between TCM and Western Medicine. The study on syndrome needs innovation on the thinking integration, which means pursuing the unification of diversification of syndrome by using the nonlinearity and complicacy thinking and performing the micro-demonstration by appropriately using the linear methods. Therefore, the writer thinks that "syndrome" in TCM refers to a pathological process of a disease made up of many concerned objective indicators, which include macro and micro content and holistic and partial contents, when it evolves at a certain stage.

# Researches on Standardization and Biological Basis of Syndrome

During the last several decades, literature and clinical epidemic research was carried out and the standardization for determining syndromes was discussed. The national standard, Terminologies for TCM Diagnosis and Treatment (including disease syndrome and treatment methods), drafted by TCM experts organized by Department of Medical Administration under State Administration of TCM, and published by General Administration of Quality Supervision, Inspection and Quarantine, presents a positive effect for building up a set of uniformed and scientific TCM clinical treatment terminology standard.

## Standardization for diagnosing syndromes

Because of the dynamic, volatile and complex nature of syndromes, it is impossible to standardize it by linear measures. For solving the problem, in the research of syndromes of common diseases the possible syndromes of a disease are usually abstracted and analyzed firstly and combined together when applied to diagnose diseases [18]. Therefore the hypothesis, Elements of the Syndrome (ES for short), was proposed. For example, Ouyang [19] divided the elements of syndromes into 3 kinds including 21 ES, among which there are 5 ES caused by Wuqi, 10 ES caused by liver and 6 ES caused by stasis of pathogenic Qi, which represent the dialectical Cause, Lesion and Trend of the disease. Zhu [20] divided the ES into Lesion and Habitude while the Habitude of

a disease includes wind, cold and heat, and etc. and Lesion includes location and time lesions. Zhang and Wang [18] divided the ES into 29, and hold that not only any of the two ES can be combined together but all the other diagnosing methods can interact with the 29 ES. Wang [21] has also pointed out that abstracting the ES, setting up a new system of methods for diagnosing diseases, identifying the biological characters and their combination rules, investigating the method for disposing multiple element information and modeling the complex system of syndromes are the keys problems and main aspects of the research.

### Biological basis of syndrome

The research focuses on the dialects of eight guiding principles, viscera, six meridians and qi-blood-body fluid and Qi-blood, especially on the dialects of viscera (mainly kidney and spleen and then heart and liver) and Qi-blood, and much work has been done for expounding the biological basis. For example many experts has proposed that Yang deficiency of kidney is closely related to the malfunction or deficient function of hypothalamus-hypophysis-target gland axis, and stasis of liver and Qi is related to sympathetic nerve-adrenal medulla, and spleen syndrome is related to digestion system, immune system, vegetative nerve, blood and internal secretion system malfunction, and etc.

By looking for the material basis for syndromes, experts hope to figure out the specific indicator of syndromes, explore the indicators of high specificity and high sensitivity and try to identify a single key indicator to offer a basis for realizing the dialectical diagnosing of syndromes. Experts have researched the laboratory indicators of syndromes from different aspects and levels. With the in-depth research of the nature of syndromes, some specificity of some indicators has been gradually negated; moreover some indicators even lead to contradicting results. Therefore some experts believe that laboratory indicators are only of weak specificity for diagnosing syndromes.

During recent years based on the occurrence of syndrome and relevance of multi-gene diseases, applying the laws and methods in genomics, proteomics and metabonomics, especially by comparing and analyzing the differences of gene expression profile or the expression results, together with bioinformatics, the gene expression and rules of gene regulation were researched, gene specification of syndromes demonstration, the change and disciplines of the regulation of gene expression was probed, and the differences of gene expression under syndromes of diseases, the third state (sub-health state) and health were investigated, and the genomics characters were summarized and the basis for genetic diagnosis of syndromes was resulted.

### Researches on TCM Clinical Syndrome Differentiation

In TCM's long clinical history, there have been a lot of syndrome differentiation methods created by doctors, including Eight Guiding Principles on Syndrome Differentiation, Etiology Syndrome Differentiation, Qi-blood-body fluid Syndrome Differentiation, Viscera Syndrome Differentiation, Six Meridians Syndrome Differentiation, Meridian Syndrome Differentiation and Ming and Qing Dynasties' Qi-blood Syndrome Differentiation and Triple Energizer Syndrome Differentiation, each of which has different characteristics and an application scope from the others, and all of which still play a great role in today's clinical medicine, and however, are displaying demerits as well, for example, if Qi-blood-body fluid Syndrome Differentiation is used to ascertain that a patient is in lack of qi, the cause of which can be explained with the help of Viscera Syndrome Differentiation, the suitable TCM prescription, however, is hard to make. Despite the fact that over the past century many scholars have proposed micro

syndrome differentiation, constitution syndrome differentiation, main symptom-focused syndrome differentiation, the combination of disease diagnosis and syndrome differentiation, and collateral disease syndrome differentiation [22], a new academic circle has yet to be formed.

## Combination of disease diagnosis and syndrome differentiation

Syndrome differentiation-based treatment has been generally recognized as TCM's specific characteristic and advantage, and syndrome differentiation is deemed as TCM's main diagnosis method and the quintessence of TCM. Many TCM scholars, however, hold that syndrome differentiation-based treatment should not be attached so much significance to, and disease diagnosis, syndrome differentiation and syndrome differentiation-based treatment should all be given space in TCM. Ancient doctors held that in terms of any 2 kinds of illness, they could either be externally different but internally identical, or internally different but externally identical, as a result of which a disease should be treated with its specific prescription and specific medicine, and only syndrome differentiation should be applicable was not proper. In terms of different diseases with the same syndrome, for example, as to hemorrhoid and colorectal cancer, both of which are characterized by bloody feces, and as to lung cancer and upper respiratory tract infection, both inflicting coughs on patients, it's difficult for syndrome differentiation alone to work out the problems. Abnormalities, genetic diseases, and some diseases caused by new physical, chemical or biological factors are difficult to cure through syndrome differentiation alone. Therefore, disease diagnosis and syndrome differentiation have their own scopes of application and the combination of them has become an irresistible trend.

Due to the different definitions of disease, the combination of disease diagnosis and syndrome differentiation is divided into the classic (traditional) and modern branches, the former being referred to as the combination of TCM disease diagnosis and TCM syndrome differentiation, and the later as the combination of western medicine disease diagnosis and TCM syndrome differentiation. Owing to the two situations, i.e. different diseases with the same syndrome, and same diseases with different syndromes, there are two clinical terms - different diseases treated the same way and same diseases differently treated. Given the fact that at a particular time one of them should be dominant and the other should be auxiliary, the combination has its syndrome differentiation-dominating and disease diagnosisdominating forms. At present, the method most extensively adopted is the disease diagnosis-dominating form of the combination of western medicine disease diagnosis and TCM syndrome differentiation; despite the difference, to maximize clinical effectiveness is their common objective. The disease diagnosis-dominating form of the combination of disease diagnosis and syndrome differentiation should be supplemented and supported by the syndrome differentiation-dominating form. Better treatment can be achieved via the complementarities of their advantages. Given the fact that TCM attaches great significance to the whole while western medicine places emphasis on parts, the combination of disease-diagnosis and syndrome differentiation offers a great opportunity for the two branches of medicine to work together, and its clinical treatment embodies the combination of the common characteristics of diseases and patients' specific state of health, and signifies the complementarities of the two branches' advantages.

## Combination of macro syndrome differentiation with micro syndrome differentiation

Many therapists have noted that through combination with the

modern medical testing, it not only enlarges and deepens the traditional view of the Four Diagnostics, but also surely improves the level of the TCM clinical diagnosis and treatment. In recent years, to improve and develop the current syndrome differentiation, many scholars have worked a lot. From the arrangement of the syndrome differentiation of Wei-Qi-Ying-Xue and triple energizer, it can be seen that each scholar has done a lot in the development of the TCM system and greatly enriched the content of the TCM syndrome differentiation. However, by getting to the bottom of the research and views, they are all based on the disease indicators which are done through four diagnostics i.e. inspection, auscultation and olfaction, inquiry, palpation. As well, they all go through the thinking process of identification, analysis and differentiation of the syndromes and belong to macro and ideational differentiation.

In 1986, the academician Shen [23] firstly identified the micro syndrome differentiation. He noted that: the so-called micro syndrome differentiation is introducing the modern science during the clinical collection of syndrome differentiation data, especially the advanced technology of the modern medicine; getting micro identification of the structure, metabolism and function of the organism and elucidating the material base more completely, more properly and more intrinsically. In brief, it is the trial micro indication identification and differentiation. As to micro syndrome differentiation, it integrates all-round information of the micro syndrome differentiation and combines with the traditional macro standard of TCM. It shall pass the repeated therapeutic treatment test so as to gradually formulate the micro standard of syndrome differentiation and guide the clinical practice. In brief, it is the micro standard for the search of each syndrome.

Kuang [24] thinks that the so-call micro syndrome differentiation is factually a method with the attempt to describe the inner basis by use of certain or some physiological-biochemical indicators. Guo [25] thinks that micro syndrome differentiation which is a syndrome differentiation method deepens into the cytochemistry, neurotransmitters, hormones, immunity and gene regulation with the guide of the syndrome differentiation of TCM and the combination of the macro four-diagnostic method of judging the inside from observation of the outside with the applicable modern new technology.

It can be seen that their understanding of the Micro Syndrome Differentiation are much the same. They all think that: (1) It is impossible for Micro Syndrome Differentiation to isolate from Macro Syndrome Differentiation and they should be carried out under the guide of the TCM basic theory. (2) The Micro Syndrome Differentiation has assimilated the modern scientific testing means. It is the deepening and expansion of the TCM macro four diagnostics. It plays an auxiliary part in diagnosis of the syndromes. Li et al. [26] established a network balance model to evaluate the imbalanced network underlying TCM Syndrome and find potential biomarkers. He investigated a group of Chronic Superficial Gastritis (CSG) and Chronic Atrophic Gastritis (CAG) patients, found that with leptin as a biomarker, Cold Syndrome patients experience low levels of energy metabolism, while the CCL2/ MCP1 biomarker indicated that immune regulation is intensified in Hot Syndrome patients. He believes the work provides a new way to understand TCM Syndrome scientifically, which in turn benefits the personalized medicine in terms of the ancient medicine and complex biological systems.

The disease will inevitably affect the research of the truth of the syndromes whether the disease dominates the syndrome or the syndrome dominates the disease. According to the TCM theory and the syndromes obtained through the identification the external syndrome of the disease as well as the conclusions of the syndromes obtained through the analysis of the micro indicators, it turns out that there're many differences between them. Does the change of the micro indicator reflect the attribute of the diseases or the similarity of the syndromes? For the selection of the micro indicator and its significance in syndrome differentiation, it should consider the difference between "Same Disease Different Syndrome" and "Different Disease Same Syndrome". It is necessary to combine traditional research with modern research, specify the application scope of the syndrome differentiation and disease differentiation, determine the clinical value of the micro syndrome differentiation, adjust and improve the current new syndrome differentiation method and expound the characteristics and rule [27].

#### Acknowledgments

This work was supported by National Natural Science Foundation of China (81072756), China National Funds for Distinguished Young Scientists (30825046) and Program for Innovative Research Team in Beijing University of Chinese Medicine (2011CXTD-07).

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J Homeop Ayurv Med, an open access journal ISSN: 2167-1206