



Chinese Medicine

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Objective Research on the Chinese Medical Pattern Discrimination of Metabolic Syndrome

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Metabolic syndrome (MS) is a combination of medical disorders that increase the risk of developing cardiovascular disease and diabetes. This syndrome affects a large number of people, and prevalence increases with age. Some studies estimate the prevalence in the US approaches 25% of the population.¹ Metabolic syndrome is also known as metabolic syndrome X, Kaplan's syndrome, Syndrome X, insulin resistance syndrome, Reaven's syndrome, and CHAOS (Australia). The components of metabolic syndrome include high blood pressure, elevated insulin levels, excess body fat around the waist, and abnormal cholesterol levels² Having just one of these conditions is not diagnosed as metabolic syndrome, but it does contribute to increased risk of serious disease. If more than one of these conditions occur in combination, one's risk is even greater. The actual criteria for diagnosing metabolic syndrome in the US include the following:

1. Abdominal obesity: a waist circumference over 102 cm (40 in) in men and over 88 cm (35 inches) in women
2. Serum triglycerides 150 mg/dl or above
3. HDL cholesterol 40mg/dl or lower in men and 50mg/dl or lower in women
4. Blood pressure of 130/85mmHg or more
5. Fasting blood glucose of 110 mg/dl or above (Some groups say 100mg/dl.)³

While there have been numerous articles on metabolic syndrome in Chinese medical journals published in China over the past half dozen years, until now there has not been a standard Chinese medical pattern discrimination of this Western medical condition. However, in *Xin Zhong Yi (New Chinese Medicine)* (2007;11:14-16), Wang Shi-han et al. of the heart and internal medicine departments of the Guang An Men Hospital in Beijing published, "Objective Research on the Chinese Medical Pattern Discrimination of Metabolic Syndrome." This article sets out a proposed standard for the pattern discrimination of this condition, based on the real-life presentations of 100 cases of MS, which is supported by objective Western medical findings.

Cohort Descriptions

One hundred patients with confirmed MS were enrolled in this study, which was conducted from March to December

2005. All 100 cases met the above diagnostic criteria for MS. Exclusion criteria included being less than 18 years and more than 70 years of age, being pregnant or breast-feeding, being insulin-dependent, or having gestational diabetes, serious heart, liver, or kidney disease, and/or psychiatric disease. In addition, there was normal comparison group of 20 persons used as a control. Table 1 shows the comparisons between these two groups.

Thus, one can see that, in terms of the male to female ratio and median age, these two groups were statistically comparable, while there were marked statistical differences in all the other mean parameters measured between these two groups.

Pattern Discrimination

Patterns in this study were discriminated based on the standards found in *Zhong Yao Xin Yao Lin Chuang Yan Jiu Zhi Dao Yuan Ze (Reference Principles for Clinical Research in Chinese Medicinals & New Medicinals)*, published in 2002. The six patterns and their pathognomonic signs and symptoms used to discriminate the 100 cases of MS were as follows:

1. Qi & yin vacuity pattern

Main signs & symptoms: Shortness of breath, lassitude of the spirit, chest oppression, and insidious pain that comes and goes

Secondary signs & symptoms: Dizziness, heart palpitations, vexatious heat in the five hearts or centers, spontaneous perspiration or night sweats, oral thirst with a predilection for drinking, reddish urine, constipation, a tender red tongue with possible teeth-marks on its edges, and a fine, forceless or bound, regularly intermittent pulse

2. Yin vacuity with heat exuberance pattern

Main signs & symptoms: Parched throat and dry mouth, vexatious heat in the five hearts

Secondary signs & symptoms: Thirst with a desire for chilled drinks, polyphagia, easy hunger, reddish urine, constipation, a red tongue with scanty, possibly yellow fur, and a bowstring, fine or fine, slippery, rapid pulse

3. Phlegm turbidity obstruction & blockage pattern

Main signs & symptoms: Heavy-headedness as if bound, chest oppression as if stopped up, numbness and heaviness of the extremities

Secondary signs & symptoms: A fat body, heart palpitations, a bland taste in the mouth, reduced eating, nausea, phlegm drool, somnolence, deviation of the mouth and eyes, slimy tongue fur, and a slippery pulse

4. Phlegm & stasis mutually binding pattern

Main signs & symptoms: Precordial chest pain, possible piercing or cutting pain, pain that has a definite location and that does not shift or move about, chest oppression as if bound, heart palpitations and restlessness

Secondary signs & symptoms: A fat body, chest and abdominal glomus and oppression, nausea, profuse phlegm, a dry mouth but no desire to drink, a darkish, dusky facial complexion, rough, scaly, hypertrophic skin, a dark, purple tongue or possible static spots, cyanotic sublingual veins, slimy tongue fur, and a bowstring, slippery or bound, regularly intermittent pulse

5. Ascendant liver yang hyperactivity pattern

Main signs & symptoms: Dizziness, tinnitus, distention and pain of the head and eyes, a red face and eyes, stress, agitation, and irritability, a red tongue with scanty fluids, and a bowstring or bowstring, fine, and rapid pulse

Secondary signs & symptoms: Insomnia, profuse dreams, low back and knee soreness and limpness, a heavy head but feet light

6. Yin & yang dual vacuity pattern

Main signs & symptoms: A cold body, fear of chill, a white facial complexion with lack of luster, tinnitus, low back soreness, occasional tidal heat, night sweats, a pale red tongue that is fat and tender and has teeth-marks on its edges along with thin, white or white and slimy fur, and a deep, fine or fine, rapid, forceless pulse

Secondary signs & symptoms: Lack of warmth in the four limbs, loose stools, long, clear urine, impotence or premature ejaculation

Table 2 shows the incidence of these six patterns in these 100 cases as well as mean figures for fasting blood glucose (FBG), fasting serum insulin (FINS), insulin sensitivity index (ISI), high-density lipid-cholesterol (HDL-C), and triglycerides (TG).

In addition, high-sensitive C-reactive protein (hs-CRP) and tumor-necrosis factor-alpha (TNF-a) were also compared between the normal group control and the MS cases. Table 3 shows these comparisons.

Thus, it was concluded by the Chinese authors of this study that levels of TG, ISI, hs-CRP, and TNF-a are 1) different from normal persons without MS, and 2) different in patients presenting the above six different Chinese patterns. This suggests that these biomedical parameters can be used as objective markers of the above patterns in patients with MS.

Discussion

I believe that studies such as this are hugely significant in the contemporary practice of Chinese medicine. First, such studies show how standard Chinese medical pattern discriminations are developed via research in China. Secondly, such studies also show that it is possible to correlate certain patterns of objective biomedical markers with certain patterns of specific biomedical diseases. Both these endeavors help to promote the development and acceptance of integrated Chinese-Western medicine. I personally see nothing reductionist about such studies; I see them as very positive for the future development of Chinese medicine and its worldwide acceptance.

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Notes

1. Metabolic Syndrome. Available at: http://en.wikipedia.org/wiki/Metabolic_syndrome, Accessed February 22, 2008.
2. Metabolic Syndrome. Available at: <http://www.mayoclinic.com/health/metabolic%20syndrome/DS00522>, Accessed February 22, 2008.
3. Mathur R, Metabolic Syndrome. Available at: http://www.medicinenet.com/metabolic_syndrome/article.htm, Accessed February 22, 2008.

Table 1: Comparisons Between Patients with and Without Metabolic Syndrome

Parameter	MS group (n = 100)	Normal comparison group (n = 20)
Male to female ratio	52/48	11/9
Median age	56.29 ± 12.03	55.81 ± 11.57
Mean waist circumference (cm)	96.5 ± 7.27	77.3 ± 4.21
Mean systolic blood pressure (mmHg)	142.8 ± 10.23	116.3 ± 11.42
Mean diastolic blood pressure (mmHg)	96.7 ± 7.24	74.5 ± 10.30
Mean triglycerides (mmol/L)	2.12 ± 0.67	1.16 ± 0.52
Mean HDL-C (mmol/L)	0.90 ± 0.23	1.37 ± 0.23
Mean FBG (mmol/L)	7.78 ± 0.97	4.72 ± 0.39
Mean insulin sensitivity index (ISI)	-4.88 ± 0.34	0.77 ± 0.12
Mean fasting serum insulin (FINS) (uIU/mL)	18.12 ± 3.10	10.83 ± 1.29

Table 3: Comparison Between High-Sensitive C-Reactive Protein (hs-CRP) and Tumor-Necrosis Factor-Alpha in MS Patients and Controls

Group	Number	hs-CRP (mmol/L)	TNF-a (ug/L)
Normal control	20	0.69 ± 0.084	1.10 ± 0.19
MS group			
Phlegm turbidity	23	2.99 ± 0.120	1.93 ± 0.29
Phlegm stasis	21	4.17 ± 0.536	2.46 ± 0.24
Liver yang	13	2.06 ± 0.099	1.83 ± 0.27
Yin vacuity w/ heat exuberance	19	4.70 ± 0.116	2.86 ± 0.24
Qi & yin vacuity	17	5.73 ± 0.1118	3.35 ± 1.17
Yin & yang vacuity	7	5.22 ± 0.023	3.21 ± 0.87

Table 2: Pattern Discrimination in 100 MS Patients

Group	Number	FBG (mmol/l)	FINS (uIU/mL)	ISI	HDL-C (mmol/l)	TG (mmol/L)
Normal control	20	4.72 ± 0.39	10.83 ± 1.29	0.77 ± 0.12	1.37 ± 0.23	1.16 ± 0.52
MS group						
Phlegm turbidity	23	6.45 ± 0.56	14.46 ± 1.19	-4.51 ± 0.17	0.72 ± 0.37	2.47 ± 1.64
Phlegm stasis	21	7.35 ± 0.94	6.74 ± 0.78	-4.81 ± 0.16	0.69 ± 0.47	2.31 ± 1.54
Liver yang	13	6.31 ± 0.43	14.24 ± 0.79	-4.32 ± 0.09	0.77 ± 0.75	2.25 ± 0.98
Yin vacuity w/heat exuberance	17	7.89 ± 0.86	19.24 ± 0.75	-5.02 ± 0.14	0.68 ± 0.29	2.53 ± 1.92
Qi & yin vacuity	19	9.10 ± 1.22	22.34 ± 1.02	-5.30 ± 0.18	0.59 ± 0.29	2.28 ± 1.62
Yin & yang vacuity	7	8.23 ± 0.72	20.47 ± 0.62	-5.27 ± 0.15	0.64 ± 0.51	2.37 ± 1.57

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