

PERSPECTIVE

Fasting Therapy in China: Modification and Future Development

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Fasting is believed to have a religious context and it was demonstrated in several biblical accounts (The Bible. Samuel 12:16-18; Psalms 35:13), which include records on the effect of fasting. In 1820, fasting was applied as a clinical therapy by Dr. Otto Buchinger I in Germany, who also set up the first fasting-based hospital in the South of Hannover and the hospital remains working now. Fasting therapy is primarily the act of abstaining from some or all food for a defined period. Both absolute fast and partially fast are normally unlimited to water. Fasting is one of a popular natural therapies in Europe because of the religious context, the believable efficacy and safety.

From 2007 to 2008, as a visiting scholar supported by scholarship of Deutscher Akademischer Austausch Dienst (DAAD) and University Duisburg-Essen, I have learned and practiced fasting therapy at Kliniken Essen-Mitte in Germany when I introduced clinical traditional Chinese medicine there. From the point of German doctors, inappropriate diet, undependable to its energy supports and delicious taste, results in several diseases, including overweight, obesity, hyperlipidemia, hypertension, type 2 diabetes, metabolic syndrome, arthritis, fibromyalgia and allergy. These diseases could benefit from fasting therapy in various degrees. In China, changing of diet to Western style contributes to more food-related patients.⁽¹⁾ Hence, the effective and safe food-control therapy should be introduced.

Considering the fact that the effect of fasting therapy in Germany must not be the same in China because of ethnic differences, it was modified accordingly after I backed to China in May, 2008. Based on a fully understanding of German profile on fasting therapy, we developed a Chinese protocol on fasting therapy for the first time. I experienced the protocol firstly under the supervision of my postgraduates.⁽²⁾

The fasting protocol falls into three phases: relief, fast and breaking fast phase. One to two relief days are preceded firstly for successfully turning into a fast phase. Several metabolic adjustments occur during fasting, the key phase. Patients restore food gradually at breaking phase to maintain the good results of the fast and to avoid introducing new problems.

Only 1.5 kg/day of fruits are taken from the relief phase. Fasting phase then begins in the following 5–7 days using 20–30 g thenardite powder to clean bowel. During the fast phase, patients are recommended to drink more than 3 L of water and take moderate physical activities. For breaking fast, patients reintroduce food stepwise from fluid to normal because of reduction of the gastral cavity during their fasting.

Data from our first fasting protocol showed it had markedly effect on weight loss and reduced body weight of average 5.3 kg. No serious side effect such as hypoglycemia events occurred. Of interest, blood uric acid and low-density lipoprotein (LDL) cholesterol levels increased at the fasting period, while both of the levels were lower than baselines after breaking fast at a defined period. Contrarily, high-density lipoprotein cholesterol (HDL-C) level decreased during fasting, but it became higher than baseline when the therapy finished.⁽³⁾ Blood clotting time was prolonged during fasting and gingival bleeding, or increased menstruation were observed,⁽⁴⁾ which provided a new light for the treatment of hypercoagulable state in patients with cardiovascular disease. We also found fasting therapy demonstrated a beneficial effect on insulin secretion, insulin resistance index and oral glucose tolerance in patients with newly diagnosed type 2 diabetes.⁽⁵⁾ Moreover, primary hypertension,⁽⁶⁾ sleep apnea syndrome, and eczema⁽⁷⁾ benefited from fasting therapy.

All patients who experienced fasting therapy were worried about they can not finish the whole procedure at the beginning, because they had a strong dependence on food and would feel uncomfortable even eating a bit less than usual. However, they found that it was so easy to control diet after they undergone the hardtime during fasting, and the changes of their knowledge on dietary control make the treatment for metabolism-related diseases more efficient.

Nevertheless, there were some problems emerging during the fasting. Our patients appeared more intense hunger, adverse alteration on mood and sleeping when compared with the reactions of German patients, which affected their compliance on fasting. Strong willpower was required to finish the therapy. The reasons for the different reactions might be associate with ethnic, diet, culture or district differentiations between China and Germany. We, then, introduced Chinese herbal medicines to reduce the above adverse reactions. The main symptoms induced by fasting were pale face, fatigue, intolerance to cold, thick and greasy tongue coating, which belongs to the Chinese medicine pattern of "yang-qi deficiency and phlegm turbidity disturbing". Lingui Zhugan Decoction (苓桂术甘汤) in *Treatise on Cold Damage* (Shang Han Lun) is a standard prescription for the pattern. We modified the prescription according to patients' symptoms and it really worked, also showed a better effect on blood glucose control in patients with type 2 diabetes.⁽⁶⁾ However, mild fatigue and hunger didn't be completely solved.

The typical diet culture difference between Asian and European is the different consumption on meats and vegetables. Meats are rich in carnitine, which mediates the burning of long-chain fatty acids in mitochondria. Asian people incline to vegetarian, resulting in low level of carnitine. During fasting, long-chain fatty acids are difficult to provide enough energy because of the lack of carnitine. Based on the above consideration, we use L-carnitine by intravenous injection during fasting and we got exciting results. I also experienced the modified fasting therapy and felt energetic without any hungry or pale face during the fasting. We continued to evaluate the modified fasting on dozens of subjects, and the data showed the therapy is feasible and safe with good compliance. We got a well-recognized Chinese fasting therapy.

We also made other adjustments to our fasting therapy, including oral administration NaHCO₃ tablets to discharge more uric acid; using reduced glutathione to protect liver function; and using coenzyme Q10 to nourish myocardium. We have developed weekend fasting protocol for busy white-collar workers. In addition, we designed a nutritious menu of 150 kilocalories for very low-calorie therapy, which containing L-carnitine with rich proteins but low calories and was produced by a professional enteral nutrition company. The Research Ethics Committee of the First Affiliated Hospital, Sun Yat-Sen University, approved our modification and clinical trials above. The modified therapy also was recognized as a new class II medical

intervention at our hospital.

After four years of profound exploration, the fasting therapy was recognized by our peers who formerly suspected it. We have so many patients now willing to experience the fasting and we developed personal fasting plan that's right for different groups. We are not alone anymore and a number of hospitals hope to join us. Until now, we have conducted the trial on more than 200 subjects in the clinic under the support of the Scientific Foundation of Guangdong Research Scheme, the help from Prof. Dobos and Prof. Michalsen in University Duisburg-Essen, Free University Berlin. respectively.⁽⁹⁾

Recently, we found an interesting case in our study. The patient's high-sensitivity C-reactive protein (Hs-CRP) level significantly decreased and intima-media thickness of carotid arteries also decreased from 1.3 mm to 0.6 mm after a defined period of fasting and calorie restriction. It suggests that the fasting therapy might be beneficial for the treatment of cardiovascular disease. For the Chinese cultural context, patients are more willing to accept natural therapies without chemical drugs. We have enough confidence on that fasting therapy will be widely applied for the treatment of metabolic-related diseases and cardiovascular disease.

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