A Medical Hypothesis: Pulse Diagnosis of Traditional Chinese Medicine Indicates the Status of Autonomic Nervous System

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ABSTRACT

TCM doctors have applied pulse diagnosis (examination) for thousands of years, however, modern medicines often request that it needs objective assessment. Patients sometimes have difference in the status of pulse between the right hand and the left wrists (the right/left difference). However, this reason is unknown. In this study we measured diameters of with ten Japanese focusing on vertebral artery, brachial artery and radial artery. Our results showed all of them showed the right/left difference. An appropriate TCM treatment might increase autonomic nervous system (ANS) function to adjust such organic right/left difference. Pulse diagnosis of TCM may reflect the status of ANS. A combination of TCM diagnosis and the right/left difference of vital signs may indicate the ANS status. At the same time, we may apply it as an easy and objective indicator to promote our health.

Keywords: Pulse diagnosis, radial artery (RA), autonomic nervous system (ANS), the right/left difference

INTRODUCTION

Pulse diagnosis is a unique technique for clinical examination of Traditional Chinese Medicine (TCM). Pulse diagnosis exams not only the pulse rate but also observes the status of pulse sharp or dull, for example. TCM doctors have applied this method to understand health/disease status of a patients for thousands of years. This technique has been handed down from master to student. Many sects and schools educate students this technique, and then there are various kinds of training systems, especially in Japan. Therefore, doctors and researchers of modern medicines often request objective assessment of pulse diagnosis.

The status of pulse of a healthy person is balanced. There is no difference between the right hand and the left hand. However, patients show unbalanced pulses (their pulse status of the right hand is different from that of the left one). Experienced TCM doctors know that TCM treatment, such as acupuncture or massage, can balance the right/left difference in pulse status.

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Autonomic nervous system (ANS) controls pulse. For example, stress and diseases induce alpha-adrenergic stimulus instantaneously contracts vessels, and then body temperature decreases. [1,2,3] In other words pulse and body temperature indicate the status of ANS.

Therefore, we have studied the effects of TCM using pulse and body temperature as indicators. We measured body temperatures of right/left sides at the same time and studied these differences. [4,5] And then we found that females of infertility have the right/left differences and appropriate TCM treatment can decrease it to come to have childbirth, for example. (under review)

However, the reason why patients often have the right/left difference of body temperature is unknown. Therefore, in this study we objectively measured arteries of ten Japanese cadavers focusing on vertebral artery, brachial artery and radial artery. And the we compared the right side artery and the left side one.

MATERIALS AND METHODS

Ten Japanese cadavers were studied for dissection practice or for the Macro Anatomy Seminar in Niigata held at the Department of Anatomy, School of Life Dentistry at Niigata, the Nippon Dental University, Niigata were examined in the present study. All cadavers were donated for use in education.
We observed vertebral artery at the level of cervical 7 (C7), brachial artery (BA) and radial artery (RA) to study the right/ left difference of body temperature.

We measured the maximal diameter (Max) and the minimum diameter (min) of C7, BA and RA. Each measurement was conducted with stainless-steel slide calipers (MISICH IP54) for three times. Thus, we obtained the average Max/min data. [Fig. 1] Simultaneously the shape and the location of them were observed as well as the existence or non-existence of branched artery.

RESULTS

All ten cases showed the right/ left difference of Max/ min diameter. RA, the place for pulse diagnosis, we observed differences in the location and the existence or non-existence of branched artery. For example, four cases (Case 3, 4, 5 and 6) showed had branched artery only on the single side. Case 4 had calcium deposition. RA of Case 8 were not able to detected (N.D.) because of the state of preservation. [Fig. 2]

DISCUSSION

In all ten cases, we found the right/left difference of C7, BA and RA in MAX/min diameters. Some cases showed even the right/left difference in the location and the existence/non-existence of branched artery. Moreover, four cases out of ten cases showed had branched artery only on the single side.

Thus, our artery status is not symmetric, therefore, all of us might have such right/left difference. Such organic difference, especially which in RA, may cause unbalanced body temperature or pulse status between the right/left hands. As 40% of cases has organic right/left difference, we have to comprehensively understand the patient not only with pulse examination but also with other examinations (such as inspection, listening and smelling examination and inquiry).

On the other hand, healthy subjects did not show such unbalanced such difference as in our previous studies. Although patients sometimes have the right/left difference in body temperature, appropriate TCM treatment can decrease such difference. [4,5] We may explain as below: when the ANS function of patients may not be enough to overcome organic unbalance, an appropriate TCM treatment can increase ANS function to adjust the right/left difference. ANS can control whole body vessels, therefore, previous studies reported that acupuncture ameliorated heart rate via ANS. [6,7]

Therefore, we hypothesize that pulse diagnosis of TCM indicates the efficiency of ANS function. Moreover, we may find the mechanism of TCM in this modulation of ANS function, which ameliorate the condition of patients with many chronic diseases as well as health promotion. [8-10]
We also consider that we can apply routine measurement of vital signs, body temperature and blood pressure, as indicators of four diagnosis in TCM. These objective data obtained by modern medicine can be indicators of TCM diagnosis. A combination of TCM diagnosis and the right/left difference of vital signs may indicate the ANS status. At the same time, we may apply it as an easy and objective indicator to promote our health.

However, our study has limitations. First we need to study in larger scale. Second as all cases showed the right/left difference in BA, we investigate right/left blood pressure. We have already started simultaneous measurement of both side BP with a specific instrument. (NAKAMURA-BP Type II, A and D Co., Ltd, Saitama, Japan) [under review].

CONCLUSIONS

Pulse diagnosis of TCM may reflect the status of ANS. A combination of TCM diagnosis and the right/left difference of vital signs may indicate the ANS status. At the same time, we may apply it as an easy and objective indicator to promote our health.

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CONTRIBUTORS

YN collected data. YN and MW prepared the draft. CT contributed to the literature review of modern medicine and ZO contributed to the review of traditional medicine. All authors critically edited drafts of this manuscript and approved the final manuscript.

COMPETING INTERESTS

The authors have no competing interests to report.

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