Tongue Inspection in TCM: Observations in a Study Sample of Patients Living with HIV

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ABSTRACT

Background: One of the principal diagnostic methods in Traditional Chinese Medicine (TCM) is the inspection of the tongue. This method involves examination of the shape, size, color, and texture of the tongue body and coat and helps reveal the state of organ functions and progression of conditions. Literature on tongue observations for patients who have human immunodeficiency virus (HIV) is minimal.

Objective: The goal of this study was to provide a clinical “snapshot” of initial tongue assessments of 159 patients living with HIV, who participated in an acupuncture clinical trial for chronic nausea. The aim was to explore the similarities and differences observed in tongue assessments.

Design: This study was part of a prospective, randomized, controlled, double-blinded (subjects and evaluators), parallel-groups, acupuncture clinical trial for treating chronic nausea.

Setting: The study was conducted at a large urban New York City academic health center.

Patients: The patients in this study were 159 individuals who had HIV infections and who had histories of chronic nausea for ≥ 3 months.

Main Outcome Measures: Initial tongue assessments were recorded for seven basic characteristics: (1) tongue color; (2) tongue shape; (3) tongue body quality; (4) coat color; (5) coat weight; (6) coat surface; and (7) tongue action.

Results: The overall tongue picture seen in these patients was that the tongue was swollen and toothmarked, had a pink body with cracks, and had a thick, dry white coat.

Conclusions: The HIV disease itself and the use of long term medications affect the Blood, Qi, Yin, and Yang. The observation of the tongue provides a window into the process of the disease and, ultimately, insight for clinical care. This sample population snapshot illustrates the complex processes seen in long-term chronic conditions managed by pharmacologic medications.

Key Words: HIV, Traditional Chinese Medicine, Tongue, Acupuncture

INTRODUCTION

THE DIAGNOSTIC PROCESS OF TRADITIONAL CHINESE MEDICINE (TCM) involves the clinical symptoms and signs discerned by the practitioner. The TCM assessment is based on four diagnostic methods: (1) inquiry; (2) inspection; (3) palpation; and (4) auscultation/olfaction.¹ Inquiry is the central way to elicit information about a

patient through asking questions. Inspection involves observation of the face and body; in particular, the tongue body and coat. Palpation involves feeling various parts of the body and/or channels but primarily pulse examination in which the radial pulse is felt at three positions on each wrist. Auscultation and olfaction refers to the listening of voice and breathing sounds, and detection of body odors. The significance of each is determined by its

context, and this interconnectedness is a hallmark of Eastern medicine.¹

Diagnostic descriptors relating to one of the four methods, the one that involves tongue inspection, were examined in a study sample of patients living with human immunodeficiency virus (HIV). The tongue is essential and is considered to be useful when principal patterns of disharmony need to be clarified. In clinical practice, tongue characteristics are often complex, particularly in patients with chronic conditions and long-term pharmacologic usage. The goal of this report is to provide a clinical “snapshot” of initial tongue assessments of 159 patients living with HIV, who participated in an acupuncture clinical trial for chronic nausea. The aim was to explore the similarities and differences observed in tongue assessments. By synthesizing and analyzing the common tongue parameters seen in a sample of patients with HIV, information and guidance can be gleaned for practitioners and researchers who treat this significant population.

Background

The descriptions and significance of tongues are mentioned in several passages in the seminal Chinese text, *Huang Di Nei Jing* (Yellow Emperor’s Inner Classic) and in the works of the Eastern Han Dynasty (25–200 AD) physician, Zhang Zhongjing.^{1,2} However, the earliest known text devoted entirely to tongue diagnosis is *Ao Shi Shang Han Jin Jing Lu* (Ao’s *Record of the Golden Mirror of Cold Induced Disorders*) with 36 color illustrations published during the Yuan Dynasty (1271–1368).² Later works that elaborated on tongues include Zhang Deng’s *Shang Han She Jian* (*Mirror of the Tongue for Cold Induced Disorders*) written in the seventeenth century.³ Since then, modern textbooks and Eastern medicine journals have incorporated color photographs to shed light on the relationship between tongue diagnosis and diseases. Tongue diagnosis is a key process used in Chinese medicine and there is growing interest as research is being conducted into the reliability and validity of this diagnostic method.⁴

Foundation of Tongue Diagnosis

The foundation of tongue diagnosis is that the tongue reflects the general state of health of the individual, and a corresponding system exists between the tongue’s topography and the body’s organ systems.¹ The meridians and collaterals are linked directly with the tongue—(Spleen primary and divergent, Kidney primary and divergent, Heart *luo*, Bladder sinew, Triple Energizer sinew)⁵—and are related indirectly via the physiologic connection to the root of congenital and acquired Qi.² The primary aspects observed are the tongue body color, vitality, shape, moisture, and tongue coating. The tongue body color, shape, and coating all provide information about the state and quality of Blood, Yin, and fluids, as well as Yang and Qi.⁶ The tongue body color almost always indicates the true condition of the body,

as this color reflects the condition of the Yin organs, Blood and *ying Qi* (nutritive Qi).² The moisture of the tongue reveals the state of fluids of the body. The tongue shape reflects the status of the organs, Qi, and Blood, particularly Deficient or Excess conditions. The tongue coat is the result of the steaming or digestive activity of the Stomach and often reflects the Hot or Cold influences and the severity of pathogenic factors.⁷ Further information on location and progression is illustrated according to the corresponding tongue topography. The tip of the tongue corresponds to conditions of the Heart and Lung; the center to the Stomach and Spleen; the sides to the Liver and Gallbladder; and the root to the Kidneys, Intestines, and Urinary Bladder.² A “normal” or vital tongue is pale red and slightly moist, and its body shape is supple, being neither too thick nor too thin.¹ The tongue should move easily and its surface should be smooth and soft, without cracks. The tongue coat should be white and thin.¹

MATERIALS AND METHODS

This report was part of a larger project to assess the use of acupuncture for nausea in patients with HIV, who participated in a randomized controlled trial. It was conducted at a large urban New York City academic health center. The study protocol was approved by the center’s institutional review board and ethics committee. Privacy rules established by the Health Insurance Portability and Accountability ACT (HIPAA) applied to all aspects of this study.

Study Participants

Researchers recruited 159 patients from HIV community-based agencies, HIV community–health fairs, and referrals from HIV primary–care providers (physicians, nurse–practitioners, and physician assistants) throughout New York City’s five boroughs. Participants were men and women $\geq$ age 18, who were diagnosed with HIV and had histories of chronic nausea for $\geq$ 3 months. These participants were taking antiretroviral medications and were on stable regimens (same drug[s], dose & frequency) for $\geq$ 8 weeks prior to entry in the study. Individuals taking any antiemetic medications were required to be on a stable regimen for a minimum of 14 days prior to entry in the study. Patients who were taking any other medications that may have had nausea listed as a side-effect were also required to be on stable regimens for $\geq$ 14 days prior to study entry. None of the patients had any acute medical conditions or opportunistic infections that would require medical attention.

TCM Practitioners

The TCM practitioners who recorded the tongue assessments in the study were all New York state–licensed acupuncturists. All of the practitioners had completed a 3-year,

full-time program at a Council of Colleges of Acupuncture and Oriental Medicine (CCAOM)-accredited institution, and were nationally certified by the National Certification Commission for Acupuncture and Oriental Medicine (NCCAOM). All of the practitioners had a minimum of 2 years of clinical experience and had experience in serving as research acupuncturists.

TCM Tongue Characteristics

All procedures, techniques, and levels of interaction were thoroughly outlined in the current authors' training manual and reviewed at training sessions prior to the implementation of the study. The approach to operational definitions of tongue characteristics included written descriptions, diagrams, and photographs. With respect to tongue diagnosis, seven basic characteristics were assessed: (1) tongue color; (2) tongue shape; (3) tongue body quality; (4) coat color; (5) coat weight; (6) coat surface; and (7) tongue action.

Study Procedure

Participants who met the eligibility criteria filled out demographic information, and symptom and quality of life (QoL) questionnaires. Using the Short Form-36 (SF-36), a battery of 11 items covering domains of health (such as physical functioning, mental health, emotional well-being, social functioning, pain, general health, vitality) was administered.⁸ All health-related quality of life (HRQoL) items were asked in reference to the previous 4 weeks.

This study incorporated a role distinction between a diagnostic acupuncturist (DA) and a treating acupuncturist (TA). After a patient was randomized and assigned to a treatment group, the patient was seen by a DA who conducted an intake to determine the acupuncture points to be prescribed for that patient. While the patient was supine on the treatment table, a TA observed the patient's tongue for 60 seconds and recorded information on the tongue assessment form with no intake or conversation with the patient. This was done to ensure accuracy and avoid any information about pathology that might have influenced the assessment. Furthermore, an unblinded study facilitator monitored all sessions to observe the fidelity of the treatment protocol and ensure that no dialogue occurred between the TA and patient to avoid interaction effects. None of the acupuncturists had access to each other's forms and there was no opportunity for discussion among the practitioners; this was done to eliminate bias or replication.

The initial assessment involved the use of a TCM Tongue Assessment Form. This TCM Tongue Assessment form was developed through consultation with several TCM academics and clinicians. The form was divided into two sections to record the observation data systematically. Part I was used to record written information relating to inspection (tongue and pulse) and diagnosis. A picture diagram of the tongue with organ areas delineated was provided (Fig. 1).

Part II was used for tongue observations; information in this Part was recorded as categorical descriptors. The acupuncturists completed this section, which consisted of categorical tongue descriptors to allow coding for analyses (Table 1).

Statistical Analysis

IBM SPSS Statistics version 20.0 was used for all statistical analyses.

RESULTS

Demographic Data

Table 2 summarizes the demographic and clinical characteristics noted at the initial assessment of the 159 patients in the study. Of the study participants, 98 (61.6%) were male. The age range was 26–65 (mean, 45.26 years, standard deviation [SD]=7.34). In addition, 40 (25.2%) of the participants had been living with HIV for >15 years, with 7 of those patients (4.4%) having had HIV >20 years. Of the 159 patients, 140 (88.1%) were currently taking HIV antiretroviral medications, with 138 patients (86.8%) taking nucleoside reverse-transcriptase inhibitors (NRTIs), 43 patients (27%) taking nonnucleoside reverse-transcriptase inhibitors (NNRTIs), and 99 patients (62.3%) taking protease inhibitors (PIs).

Work, Social, and Personal Activity Status at Initial Assessment

Table 3 summarizes the relative burden on the patients' functioning, including work and social activity. As a result of their physical health, 99 patients (62.3%) reported they had difficulty performing work or other regular daily activities, and 70 patients (44%) reported feeling tired all or most of the time. One third of the patients (37.7%) reported that social activities, such as visiting with friends, relatives, etc., were interfered with all or most of the time by the patients' physical health.

TCM Tongue Data at Initial Assessment

Table 4 shows the TCM tongue characteristics of the participants at their initial assessments. Sixty-five (40.9%) patients had a pink tongue body color. Of note, for the pink category, there were 30 cases in which TCM practitioners recorded a pink tongue color with a red tip. A red tip is usually associated with Heart or Lung Heat. Thirty-three (20.8%) patients had pale tongues, which were less red than a normal tongue; this often indicates Blood or Yang Qi Deficiency. The most frequent tongue shape observed was swollen (in 82 patients [51.6%]), which was slightly larger than normal. With respect to tongue body quality, 50 patients (31.4%) had tongues that were tooth-marked and 44 patients (27.7%) had tongues that were cracked.

Date:
Subject #:
Session #:

Tongue			Pulse	
Color				
Body				
Coat				

Diagnosis:

Date

Acupuncturist Signature

Reviewed upon completion

FIG. 1. Sample tongue assessment form for illustration.

The presence or absence of a coat reveals significant information about the Stomach Qi and the depth or strength of the condition or pathogenic factor. One hundred and nine patients (68.6%) of the patients had white tongue coats. The most frequent coat weight was a thick coating, as was seen

in 64 patients (40.3%). For the coat surface, 100 patients (62.9%) had dry tongue coats. In terms of tongue action, 99 patients (62.3%) had quivering tongues (a tongue that trembles quickly with small movements). However, 56 (35.2%) patients had no remarkable tongue actions.

TABLE 1. TCM TONGUE CHARACTERISTICS ASSESSMENT: CATEGORICAL DESCRIPTORS

<i>Tongue body color</i>	<i>Tongue shape</i>	<i>Tongue body quality</i>	<i>Coat weight</i>	<i>Coat color</i>	<i>Coat surface</i>	<i>Tongue action</i>
Unremarkable	Unremarkable	Unremarkable	Unremarkable	Unremarkable	Unremarkable	Unremarkable
Pale	Thin	Stiff	Thick	White	Wet	Moving
Pink	Swollen	Flaccid	Thin	Pale yellow	Dry	Quivering
Red	Hammer-shaped	Cracked	None	Yellow	Greasy	
Red with spots	Long	Deviated	Geographic	“Dirty” yellow	Foamy	
Red with prickles	Short	Rolled	Peeled	Gray	Sticky	
Dark red	Wide	Ulcerated		Black		
Reddish purple	Raised edges	Tooth-marked		Black spots		
Purple	Large	Pointed				
Blue	Pointed	Dip				

TCM, Traditional Chinese Medicine.

TABLE 2. SUMMARY OF DEMOGRAPHIC AND CLINICAL CHARACTERISTICS OF THE STUDY POPULATION (N=159)

Characteristic	n (%)
Age, mean (SD)	45.26 (7.34)
26–35	15 (9.4%)
36–45	72 (45.3%)
46–55	57 (35.9%)
56–65	15 (9.4%)
Gender	
Male	98 (61.6%)
Female	61 (38.4%)
Race/Ethnicity	
White, non-Hispanic	21 (13.2%)
White, Hispanic	10 (6.3%)
Black or African American, non-Hispanic	80 (50.3%)
Black or African American, Hispanic	6 (3.8%)
American Indian	0
Asian	0
Multi-race/other	42 (26.4%)
Education	
Less than high school (partial or completed)	28 (17.6%)
High school	33 (20.8%)
Some college	29 (18.2%)
College degree	22 (13.8%)
Graduate /professional degree	7 (4.4%)
No response	40 (25.2%)
Year of HIV diagnosis	
1980–1984	7 (4.4%)
1985–1989	33 (20.8%)
1990–1994	36 (22.6%)
1995–1999	36 (22.6%)
2000–2004	34 (21.4%)
2005–2009	13 (8.2%)
Antiretroviral therapy use	
Yes	140 (88.1%)
No	19 (11.9%)
Antiretroviral medications	
NRTI	138 (86.8%)
NNRTI	43 (27%)
PI	99 (62.3%)

SD, standard deviation; NRTI, nucleoside reverse transcriptase inhibitors; NNRTI, non-nucleoside reverse transcriptase inhibitors; PI, protease inhibitors.

DISCUSSION

The introduction of antiretroviral therapy (ART) has reduced HIV-related morbidity and mortality, and HIV infection has become a chronic and manageable condition.^{9–12} As a result, HIV-infected individuals are living longer but still continue to struggle with maximizing their functional capacity and minimizing their vulnerabilities.¹³ Chronic symptoms, such as nausea, fatigue, and muscle weakness, affect HRQoL.¹⁴ For patients who are aging with HIV, the cumulative burden of disease impacts their physical, work, and social activity domains, as shown in Table 3.

TABLE 3. QUESTIONS USED TO MAKE INITIAL ASSESSMENT OF SOCIAL AND WORK ACTIVITY STATUS (N=159)

Questions	Results	n (%)
During the past 4 weeks, have you had difficulty performing work or other activities as a result of your physical health?	Yes	99 (62.3%)
	No	58 (36.5%)
	No response	2 (1.3%)
During the past 4 weeks, how much of the time has your physical health or emotional problems interfered with your social activities (such as visiting with friends, relatives, etc.)?	All of the time	18 (11.3%)
	Most of the time	42 (26.4%)
	Some of the time	52 (32.7%)
	A little of the time	26 (16.4%)
	None of the time	21 (13.2%)
How much of the time during the past 4 weeks did you feel tired?	All of the time	28 (17.6%)
	Most of the time	42 (26.4%)
	A good bit of the time	22 (13.8%)
	Some of the time	42 (26.4%)
	A Little of the time	22 (13.8%)
	None of the time	2 (1.3%)
	No response	1 (0.7%)

The viral disease itself and the use of long-term medications affect the Blood, Qi, Yin, and Yang. The observation of the tongue provides a window into the process of the disease and, ultimately, the insight needed to determine clinical care. The overall tongue picture seen in the current report was swollen, tooth-marked, a pink body with cracks and a thick, dry white coat. The swollen tongue shape indicates accumulation of fluids, often caused by Deficient Qi or Yang.¹⁵ Tooth marks on the border may be seen with a swollen tongue and usually signifies Deficiency, commonly of the Spleen.⁶ The thick coat reveals an Excess factor, and a white coat may indicate a superficial Cold pathogenic factor, but, often, if combined with a cracked or dry coat, indicates some impairment of body fluids.¹ A dry coat usually indicates a state of Heat, Yin Deficiency, or Blood/Qi failing to develop any liquid.¹⁶ Cracks on the tongue are often a sign of severe and chronic illness (Fig. 2).¹ Cracks in a red tongue indicate Heat injuring the fluids or Deficient Yin; cracks in a pale tongue signify Deficient Blood and Qi.¹ The location and depth of the crack(s) reveal more detailed information about the organs involved. A central short crack in the middle of the tongue often indicates stomach Yin Deficiency¹⁵ (Fig. 2), and cracks on the sides of the tongue are evidence of Spleen Yin Deficiency, which develops very slowly or during a serious illness.⁶ A quivering quality of the tongue is seen in chronic conditions of Spleen Qi or Spleen Yang Deficiency, unless the tongue body color is red and dry, in which Internal Wind may be the factor.¹⁵

From a Western medicine perspective, nutritional deficiencies may make the tongue sore and beefy-red in color.¹⁷ A smooth, glossy tongue with a red or pink background or

TABLE 4. FREQUENCY OF TONGUE CHARACTERISTICS
AT INITIAL ASSESSMENT

<i>Tongue characteristic</i>	<i>n (%)</i>
Tongue body color (<i>N</i> = 159)	
Unremarkable	0 (0.0%)
Pale	33 (20.8%)
Pink	65 (40.9%)
Pink with red tip	30 (18.8%)
Red	37 (23.3%)
Red with spots	1 (0.6%)
Red with prickles	9 (5.7%)
Dark red	2 (1.2%)
Reddish purple	7 (4.4%)
Purple	5 (3.1%)
Blue	0 (0.0%)
Tongue body shape (<i>N</i> = 159)	
Unremarkable	1 (0.6%)
Thin	4 (2.5%)
Swollen	82 (51.6%)
Hammer-shaped	0 (0.0%)
Long	6 (3.8%)
Short	21 (13.2%)
Wide	9 (5.7%)
Raised edges	12 (7.5%)
Large	0 (0.0%)
Pointed	24 (15.1%)
Tongue body quality (<i>N</i> = 159)	
Unremarkable	2 (1.3%)
Stiff	27 (17.0%)
Flaccid	17 (10.7%)
Cracked	44 (27.7%)
Deviated	4 (2.5%)
Rolled	2 (1.2%)
Ulcerated	0 (0.0%)
Tooth-marked	50 (31.4%)
Pointed	13 (8.2%)
Dip	0 (0.0%)
Coat color (<i>N</i> = 159)	
Unremarkable	13 (8.2%)
White	109 (68.6%)
Pale yellow	8 (5.0%)
Yellow	9 (5.7%)
“Dirty” yellow	4 (2.5%)
Gray	3 (1.9%)
Black	0 (0.0%)
Black spots	1 (0.6%)
No response	12 (7.5%)
Coat weight (<i>N</i> = 159)	
Unremarkable	11 (6.9%)
Thick	64 (40.3%)
Thin	50 (31.4%)
None	9 (5.7%)
Geographic	20 (12.6%)
Peeled	5 (3.1%)

(continued)

TABLE 4. (CONTINUED)

<i>Tongue characteristic</i>	<i>n (%)</i>
Coat surface (<i>N</i> = 159)	
Unremarkable	8 (5.0%)
Wet	29 (18.2%)
Dry	100 (62.9%)
Greasy	12 (7.5%)
Foamy	6 (3.8%)
Sticky	4 (2.5%)
Tongue action (<i>N</i> = 159)	
Unremarkable	56 (35.2%)
Moving	4 (2.5%)
Quivering	99 (62.3%)

atrophic glossitis is often linked to an underlying chronic vitamin deficiency of iron, folic acid, vitamin B₁₂, riboflavin, or niacin but may also include the concomitant conditions of diabetes, xerostomia, and/or candidiasis.¹⁸

This sample population snapshot illustrates the complex processes seen in long-term chronic conditions managed by pharmacologic medications and may provide further evidence to add to what many acupuncture practitioners already see in their clinical practices. Before 1987, there were no antiretroviral medications approved for use in HIV. Since then, current recommended first-line treatment of ART consists of the use of two NRTIs plus a NNRTI, and second-line ART for adults consists of two NRTIs plus a ritonavir-boosted PI.¹⁹ Approximately 47% of the current sample were living with HIV for > 10 years, thus the prolonged use of ART is a major consideration when observing the tongue.

Modern clinical texts often comment on the TCM energetic effects of medications on the tongue and pulse. Maciocia refers to the effects of certain pharmaceutical drugs such as antibiotics, corticosteroids, bronchodilators, diuretics, anti-inflammatory agents, and antineoplastics on the tongue.² Antibiotics may injure the Stomach Yin, oral corticosteroids make the tongue red and swollen, and anti-inflammatory drugs tend to cause red points.² With many of these agents, he notes that prolonged use may make the tongue peel.¹⁵ Much of this information or speculation is only possible through observation.

It has been suggested that a review of the adverse effects of pharmaceuticals could help researchers infer, through observation, what the TCM perspective might be.²⁰ The main adverse effects of NRTIs include numbness, tingling and pain in the extremities, nausea, vomiting, diarrhea, fatigue, anemia, and insomnia.²¹ With protease inhibitors, the adverse effects include nausea, vomiting, diarrhea, rash, elevated liver enzymes, hypercholesterolemia, and hypertriglyceridemia.²² From a Chinese medicine perspective, one can only assume that the Liver, Spleen, and Kidney meridians are all affected.

It is emphasized that tongue observation is just one of the four pillars of diagnostic methods. It must be considered

FIG. 2. Tongue photos taken from an HIV population sample. Examples of tongue photos taken at baseline of patients infected with HIV. **(A)** This wide pink tongue with a slightly red tip has small cracks over the entire surface and is slightly curled up at the edges. There is only a slight yellow coat in the posterior third. **(B)** This pointed, pale tongue has a thin, vertical crack in the center with a few horizontal cracks. The white coat is thick at the posterior third and becomes thinner in the front. The tip has no coat and is wet, and there are teeth marks on the sides.

carefully with other signs and symptoms, the pulse, and the history of the patient. Tongue examination tends to be more objective than pulse diagnosis and is a multifaceted process during which practitioners evaluate the tongue systematically and use consistent processes to determine diagnoses.²³ However, various factors can affect clinical observations and diagnosis, including practitioner variability that results from differences in education, training, and clinical experience. To minimize this, in the current study, the TCM practitioners were all graduates of the same institution, had practiced for at least 2 years, were pretested, and had attended training sessions. The time of assessment, differences in light sources, food, drink, and tongue brushing are also factors to consider. The tongue should be examined quickly and the patient should not be asked frequently to extend the tongue or to do so with excessive force. Furthermore, the mean age of this sample was 45 years old. It has been estimated that, by 2015, half of the people living with HIV in the United States will be over the age of 50.²⁴ The current sample echoes this estimate, as 129 participants or 81% were over age 40. This middle age associated with waning of Kidney Qi may also account for the range of tongue observations seen.

CONCLUSIONS

From a historical perspective, the utility of Chinese medicine is largely based on observation. The roots of tongue diagnosis are based on traditions passed down through verbal and written recordings and illustrations

which have been elaborated, revised, and appended over the years through experience.

Literature on tongue observations for the HIV population is minimal. With >60% of patients who have HIV reporting usage of complementary and alternative medicine (CAM),²⁵ particularly TCM, the more practitioners record and explore their findings, the more this activity expands available knowledge. This report aimed to capture a clinical picture of typical patients living with HIV for many years. HIV/acquired immunodeficiency syndrome is increasingly a disease of older people and ~11% of new infections occur in adults age 50 or older.²⁶ Furthermore, older patients are also increasingly at risk of polypharmacy issues because of the presence of comorbidities. The cumulative burden of chronic illness and the “normal” biology of aging impact QoL greatly. As a result, people living long-term with HIV struggle with functional declines and vulnerabilities, thus, while wishing to maximize their longer life expectancy, these patients often turn to CAM.

As Eastern medicine becomes more integrated into the symptom management of long-term chronic conditions such as HIV, published clinical observations and case reports can build further upon the existing knowledge for researchers who are designing clinical trial protocols, practitioners who are developing treatment guidelines, and students of Eastern and Western medicines.

ACKNOWLEDGMENTS

The authors gratefully acknowledge the study participants and the acupuncturists: Lorena Gonzalez, MS, LAc,

Gloria Rosenzweig, MS, LAc, Londa Hackett, MS, LAc, Amy Mahoney, MS, LAc, Theresa McPartlan, MS, LAc, Li Ma, MS, LAc, and Grace Jao, MS, LAc. This work was supported by the National Institutes of Health research grant number R01-NIH-NR009364.

DISCLOSURE STATEMENT

No competing financial interests exist.

REFERENCES

1. Kaptchuk TJ. *The Web That Has No Weaver*. New York: Congdon & Weed; 1983.
2. Maciocia G. *Tongue Diagnosis in Chinese Medicine*. Seattle: Eastland Press; 1995.
3. Yasui H. Medical history in Japan, Dosan Manase and his medicine. *J Kampo Acupunct Integr Med*. 2007;2(1):30–33.
4. Kim M, Cobbin D, Zaslawski C. Traditional Chinese Medicine tongue inspection: An examination of the inter- and intrapractitioner reliability for specific tongue characteristics. *J Alt Complement Med*. 2008;14(5):527–536.
5. Deadman P, Al-Khafaji M, Baker K. *A Manual of Acupuncture*. East Sussex, UK: Journal of Chinese Medicine Publications; 1998.
6. Kirschbaum K. *Atlas of Chinese Tongue Diagnosis*. Seattle: Eastland Press; 2000.
7. Deng T, Ergil K. *Practical Diagnosis in Traditional Chinese Medicine*. Edinburgh: Churchill Livingstone; 1999.
8. Ware JE, Sherbourne CD. The MOS 36-Item Short-Form Health Survey (SF-36): Conceptual framework and item selection. *Med Care*. 1992;30(6):473–483.
9. Palella FJ Jr, Delaney KM, Moorman AC, et al. Declining morbidity and mortality among patients with advanced human immunodeficiency virus infection: HIV Outpatient Study Investigators. *N Engl J Med*. 1998;338(13):853–860.
10. Murphy EL, Collier AC, Kalish LA, et al. Highly active antiretroviral therapy decreases mortality and morbidity in patients with advanced HIV disease. *Ann Intern Med*. 2001;135(1):17–26.
11. Antiretroviral Therapy Cohort Collaboration. Life expectancy of individuals on combination antiretroviral therapy in high-income countries: A collaborative analysis of 14 cohort studies. *Lancet*. 2008;372(9635):293–299.
12. HIV-CAUSAL Collaboration; Ray M, Logan R, Sterne JA, et al. The effect of combined antiretroviral therapy on the overall mortality of HIV-infected individuals. *AIDS*. 2010;24(1):123–137.
13. High KP, Brennan-Ing M, Clifford DB, et al. HIV and aging: State of knowledge and areas of critical need for research. A report to the NIH Office of AIDS Research by the HIV and Aging Working Group. *J Acquir Immune Defic Syndr*. 2012;60(suppl1):S1–S18.
14. Lorenz KA, Shapiro MF, Asch SM, Bozzette SA, Hays RD. Associations of symptoms and health-related quality of life: Findings from a national study of persons with HIV infection. *Ann Intern Med*. 2001;134(9[pt2]):854–860.
15. Maciocia, G. *Diagnosis in Chinese Medicine: A Comprehensive Guide*. Edinburgh: Churchill Livingstone; 2004.
16. Schnorrenberger CC, Schnorrenberger B. *Pocket Atlas of Tongue Diagnosis*. New York: Thieme; 2005.
17. Huguley CM Jr. The tongue. In: Walker HK, Hall WD, Hurst JW, eds. *Clinical Methods: The History, Physical, and Laboratory Examinations*. Boston: Butterworths; 1990:622–623.
18. Rogers RS. Disease of the tongue. In: Lotti TM, Parish LC, Rogers RS III, eds. *Oral Disease Textbook and Atlas*. New York: Springer; 1999:219–226.
19. World Health Organization (WHO). Consolidated Guidelines on the Use of Antiretroviral Drugs for Treating and Preventing HIV Infection: Recommendations for a Public Health Approach. Geneva: WHO, 2013. Online document at: www.who.int/hiv/pub/guidelines/arv2013/download/en/index.html Accessed July 1, 2013.
20. Greenwood MT. Drugs and acupuncture: The energetic impact of antihypertensives. *Med Acupunct*. 2007;19(1):5–12.
21. Max B, Sherer R. Management of the adverse effects of antiretroviral therapy and medication adherence. *Clin Infect Dis*. 2000;30(suppl2):S96–S116.
22. Carr A, Cooper DA. Adverse effects of antiretroviral therapy. *Lancet*. 2000;356(9239):1423–1430.
23. Anastasi JK, Currie LM, Kim GH. Understanding diagnostic reasoning in TCM practice: Tongue diagnosis. *Altern Ther*. 2009;15(3):18–28.
24. United States Department of Health and Human Services, Administration on Aging. 2012. Older Adults and HIV/AIDS. Online document at: www.aoa.gov/AoARoot/AoA_Programs/HPW/HIV_AIDS/index.aspx Accessed September 25, 2013.
25. Littlewood RA, Vanable PA. Complementary and alternative medicine use among HIV people: Research synthesis and implications for HIV care. *AIDS Care*. 2008;20(8):1002–1018.
26. Brooks JT, Buchacz K, Gebo KA, Mermin J. HIV infection and older Americans: The public health perspective. *Am J Public Health*. 2012;102(8):1516–1526.

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