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CONTENTS

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From the Editor in Chief Dr Suzanne Cochrane,

PhD, BSW, DTCM, BAS

It is a great pleasure to write my first editorial as the new Editor in Chief of the Australian Journal of Acupuncture and Chinese Medicine (AJACM).

Thank you to the AACMA Board and the Editorial Board members for having confidence in me to appoint me to this role.

A special thanks to Deputy Editor Professor Christopher Zaslawski and AJACM Managing Editor Melinda Lyons for bringing the Journal back from its hiatus.

I would like to acknowledge John Deare's departure from the Editorial Board and thank him for his years of service to the Journal. His contribution has been much appreciated over the years.

This year marks 10 years since the AJACM first started production. This issue of the Journal brings forward a diverse range of voices from within Chinese medicine.

To my mind this is an excellent function for a professional journal; bringing the diversity within the profession into dialogue.

This issue also includes fantastic reads from book reviews through to case studies.

Andrew Koh (with minor assistance from myself) offers an interpretation of the theoretical foundations of 'the balance method' in acupuncture.

Mining and identifying the Neijing as the origin of this approach to applying acupuncture has allowed Mr Koh to propose an additional channel pairing based on the relative 'quantity' of qi and blood in a channel.

Scholarship of this kind only enriches our practice – we can more intelligently link our classics to contemporary engagement with patients and choice of acupuncture points. Only then can we be a true modern ancient medicine.

And as a modern practice administered by flawed humans we also make mistakes. What we do with those mistakes is vital for our development as a profession.

Kate Roberts has used the case study of New Zealand reporting of accidents related to acupuncture practice to explore adverse events reporting.

She raises important issues about who is an 'acupuncturist' and consequently who is being evaluated by reported adverse events and whether the reporting mechanisms for accidents or mistakes are adequate.

It is a thoughtful piece and well worth thinking of your response when you next make a mistake or when a patient complains about the unwelcome effects of your treatment. Do you record these or do you report them? And to whom? Does your professional association encourage you to document and report accidents?

Benjamin Chant, Jeanne Madison and Gudrun Dieberg bring their analytic minds to the published literature on how different ways of conceiving and practising acupuncture developed in various parts of East Asian countries have resulted in different styles of acupuncture in 'the West' despite a common pool of philosophical and theoretical foundations.

Such a learned study assists us to understand that the cultural environment of a medicine shapes and modifies how the medicine is performed.

This paper does not highlight the fact there are practitioners who argue that they deliver 'Western acupuncture' separate to the 'imported' styles from China, Korea, Japan and Vietnam.

To the frustration of many of our Chinese medicine students we are a diverse industry or profession.

Case studies are the evidence base of our tradition. The Editorial Board is keen to hear of your success (and failures) in your clinical practice.

We would like to provide a means for you to learn from each other. Please do not hesitate to submit your stories of clinical experience. We promise to help you polish and edit them so they are suitable for publication.

We are always welcoming of these case histories as well as planning to continue reporting the research reports and more academic articles you have come to expect from this Journal.

Dr. Suzanne Cochrane PhD, BSW, DTCM, BAS
AJACM Editor in Chief

Accidents do happen! A discussion of Acupuncture incident and adverse event reporting in New Zealand

By Kate Roberts, MHSc(TCM), BHSc(Acup)

ABSTRACT

Acupuncture is commonly presented in the literature as a safe and low risk therapy. However without a comprehensive reporting scheme for accidents and adverse events there are concerns about relying on self-reporting mechanisms.

Key issues identified within reporting are the potential for significant under reporting and the high rate of adverse events due to professional negligence.

Additionally, a proportion of reporting is not traditional acupuncture, often medical acupuncture or dry needling, and is not performed by correctly trained professionals with the World Health Organisation (WHO) recommended 500 hours of clinical training specific to acupuncture.

This article argues that acupuncture is only safe in the hands of appropriately trained professionals, and these professionals must ensure high standards of practice and continual training and review. Further points of discussion are the significant concerns with the portrayal of 'acupuncture' and 'acupuncturist' in the literature.

To emphasise this argument a snapshot on reporting over a five year timeframe within New Zealand is presented.

KEYWORDS Acupuncture, safety, adverse events, New Zealand

Introduction

The safety of acupuncture is a debated topic in the literature with the extreme dichotomies of reporting occurring from acupuncture being a high risk dangerous therapy[1], to it being a low risk and safe therapy.[2]

Whilst a number of systematic reviews place adverse event (AE) rates for acupuncture treatments at <1-16% [2-16], some authors argue that this rate may be as high as 48%.[17]

The definition of an AE is "any unfavourable and unintended sign, symptom or disease that presents during or after treatment with acupuncture regardless of a causal relationship".[18]

AEs tend to be classified according to risk which is calculated based on the frequency with which they occur and the level of seriousness.[19]

The distinction is also made between unavoidable and avoidable events, and are often highlighted avoidable events likely to be caused by inadequate practice standards and negligence.

Such events include things like pneumothorax, moxibustion burns, fainting of a patient while seated and leaving needles in patients following treatment.[20]

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In New Zealand, acupuncture is a profession not regulated by legislation. Standards are maintained by the professional bodies to which membership is voluntary.

These organisations require members to hold the NZ awarded four year bachelor's degree or international equivalent, and in addition to the primary qualification, all applicants must have completed a minimum of 500 hours of supervised clinical training.

Whilst acupuncture training in New Zealand is a four year degree, there is no current restriction on practice by those not holding this level of qualification, and there exists a myriad of short courses for other allied health professionals including massage therapists, chiropractors and osteopaths.

The reporting of AEs in New Zealand is voluntary if done by practitioners, or if reported by clients, and in these voluntary reports the level of training and professional membership are often omitted.

Reporting of safety in the literature

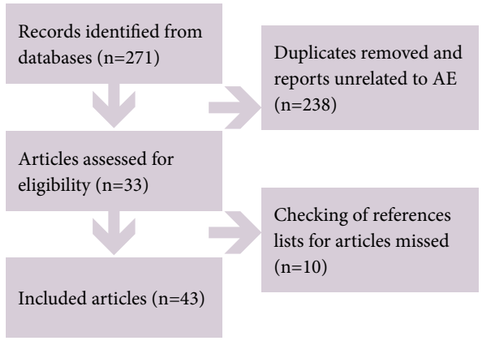
To provide background on the topic of AEs reported in the literature the following databases were searched: PubMed, EMBASE, Medline and AMED (from their inception to May 2016).

The search string used was (acupuncture[Title]) AND (safety[Title] OR 'adverse event'[Title]). Surveys and systematic reviews were included, but incident reports during clinical trials, safety regarding acupuncture for a specific condition or single case studies were omitted as these were likely to be included in the reviews.

Once duplicates were removed a total of 33 papers reporting or commenting on adverse events in acupuncture were extracted.

The reference lists of these articles were scanned and a further 10 articles were included for review. Of these 43, 15 were letters to the editor or comments responding to articles previously published.[1,19,21–33] (Appendix 1 - Summary of AEs from the literature search).

Figure 1 - search strategy



The general consensus within the literature is that the rate of AEs related to acupuncture, as a percentage of total number of treatments, is a safe, or relatively safe therapy when applied in clinical practice by trained professionals.[2,12,14,34] However, whilst serious events are rare, minor AEs are relatively common and include pain, bleeding and bruising, fatigue and fainting.[35]

Witt's 2009 prospective study[14] is the largest prospective study to date focusing on 19,726 AEs. It reported up to 8.6% of patients reporting AEs. Most of these were minor events such as bleeding or pain at the site of needle insertion, but 2.2% of those AEs required further treatment including two pneumothoraces and one nerve lesion which lasted 180 days.

The authors of this paper point out that many of these events may have been caused by malpractice and negligence and potentially could have been avoided.

In this particular study the AEs which indicate negligence or malpractice included broken or forgotten needles, pneumothorax and moxibustion burns occurring in 0.1% of all the AEs.

The purpose of this study was to develop an appropriate consent form taking into account possible risks of treatment. This is something the authors agreed is not done well, and may reduce the number of events reported that are normal treatment responses.

Birch agrees that the over reporting of normal treatment responses does not make sense and this indicates an issue with the consent process rather than the acupuncture itself.[19]

Macpherson's 2004 paper[2] stated a total of 10.7% of patients surveyed reported a total of 1044 AEs caused directly from treatment. With the most common being 'severe tiredness and exhaustion', followed by prolonged or unacceptable pain at the needling site.

Only three of the reported events could be considered serious requiring admission to hospital, these were severe back pain, body rash with fever and extreme drowsiness leading to a motor vehicle accident. 109 (10%) events were considered to be avoidable including needles being left at the end of the treatment, moxibustion burns, electro stimulation that was too strong, and patients being left alone too long.

It could be argued that some of what was reported constitutes normal treatment effects; however, 10% of avoidable events raises concern.

Zhang's 2010 review[34] of the Chinese literature between 1980-2009 agreed that many acupuncture related AEs (296 traumatic injuries and 11 infections of the 479 AEs) reported in the literature can be attributed to improper technique and that increased 'efforts should be made to monitor and minimise risk'.

Shortly following this was He's 2012 review[18] of the Chinese literature from 1956-2010, which agreed that the majority of AEs (451 tissue or organ injury, 38 infections, 854 forgotten/broken/bent/stuck needle) were caused by negligent practice or incorrect sterilisation procedures and that they could be mainly avoided through standardisation of teaching and clinical practice.

Birch supported the robustness of this study in terms of accuracy of reporting in retrospective analyses however, he suggests that too much standardisation could impact on the diversity of acupuncture. Birch[19] concurs that education around anatomy, physiology, pathophysiology, infection control and handling of patient are paramount in order to reduce the number of serious AEs occurring due to negligent practice.

Adams et al 2011 study[3] focused on the safety of paediatric acupuncture through a systematic review. Although the rate of AEs (279) was low at 11.8%, 25 serious events including those of infection, organ rupture, nerve impairment and haemorrhage were reported.

Of these 25 events, 6 of these were at the hands of certified acupuncturists but 18 were due to acupuncture being performed by 'unspecified practitioners' who were listed as those not trained in traditional Chinese medicine.

One of the key implications of this study was that a majority of the AEs are a result of poor clinical practice rather than as a consequence of the acupuncture itself. Poor clinical practice resulted in infection due to inadequate sterilisation

and organ damage due to improper technique or poor anatomical knowledge.

The authors conclude that their review concurs with others that have found that 'acupuncture is safe when performed by appropriately trained practitioners'.

Bensoussan concurred that the amount of training has a direct impact on rate of AEs. In his study, practitioner training was matched against rate of AEs reported and he noted that medical practitioners stated significantly less training in acupuncture than non-medical practitioners with 72% of medical practitioners completing less than two weeks of TCM training.

The rate of reported pneumothorax was double in medically trained acupuncturists compared to TCM trained acupuncturists.[4]

White's 2004 review[36] theorised that the cumulative worldwide incidence for serious AEs (355) is estimated to be 0.05 per 10,000 treatments, this represents a 'very low' risk which is below that of many common medical treatments.

This number differs slightly from Ernst's review of 2006[17] which suggests that serious events are probably rare but non-serious events occur in 7-11% of patients. Ernst goes on to state that due to under reporting this percentage may be significantly lower than the true rate of events.

This discrepancy in reported numbers of events highlights the issues surrounding reporting consistency, and additionally touches on the potential for publication bias to occur in which the number of serious or unusual adverse events may be over reported in some instances.[36]

Janzs' 2011 article[37] highlights the risk of other therapies being reported as acupuncture in the literature on AEs. He specifically focuses on the use of 'dry needling' and more recently 'Intramuscular Stimulation' which are available as short courses of training to a myriad of health practitioners.

Unfortunately it is almost impossible to distinguish in many instances the type of therapy that occurred, especially in many of the retrospective analyses.

This re-defining of acupuncture to avoid legal ramifications of practice in states and countries where regulation is applied poses a serious amount of risk.

In summary, the four key issues consistently identified within the literature are:

- the reporting system is inherently flawed and is subject to significant under reporting
- some of what is reported is due to professional negligence and constitutes avoidable events
- a proportion of what is reported may be normal treatment effects and therefore a well-designed consent form is needed to avoid this over reporting.
- a proportion of what is actually reported is not acupuncture. In fact it may be dry or trigger point needling, and is not performed by correctly trained professionals with the recommended 500 hours of clinical training specific to acupuncture.[38]

Snapshot on New Zealand

A five year (2008-2013) retrospective review of accident and AE reporting was conducted in New Zealand to compare results of AE reporting to what is reported in the literature. To do this the following have been investigated:

- Acupuncture New Zealand (AcupNZ) (previously New Zealand Register of Acupuncturists (NZRA)) complaints or reports,
- any Health and Disability Commissioner (HDC) complaints,
- Accident Compensation Corporation (ACC) statistics;
- reporting in a single education institute.

Professional Body

In the last five years there has been 13 reports lodged with the Register (see Table 1 AE reports to the NZRA 2008-2013).

All were patient complaints except one which was a self-reported herbal medicine concern from a practitioner. Where appropriate the register has reviewed procedures or followed up with members directly.

This process also provides focus for continuing education and development.

This highlights that there is a sufficient framework for complaints and reporting to be made and a robust system for the management of AEs.

However, reporting remains voluntary therefore the risk of under reporting exists.

EVENT	NUMBER OF AE REPORTS	ACTION BY PROFESSIONAL BODY
Worsening of condition	1	No formal complaint, no action taken
Herbs causing upset bowels	1	Practitioner reported, no action taken
Pneumothorax	2	One case handled by HDC, one case practitioner reported, reviewed by NZRA
Sexual misconduct, indecent assault, sexual assault	3	One case handled by HDC but discontinued
One case investigated by police and HDC but discontinued.		*Handled externally*
One case pleaded guilty and is in prison.		*Handled externally*
Painful treatment	1	Procedures reviewed with member
Moxibustion burns	1	Procedures reviewed with member
Chinese herbs containing western medicine.	1	Medsafe (New Zealand's Medicine Safety Authority) gave a written warning
Severe petechie on face from dermal roller.	1	Practitioner reported; no formal complaint. Procedures reviewed by the NZRA
Gua sha bruising	2	Procedures reviewed by the NZRA.

Table 1- AE reports to the NZRA 2008-2013

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Insurance Body

Accident Compensation Corporation (ACC) is the key injury compensatory scheme in New Zealand.

ACC manages approximately 1.6 million injury claims each year and collects information that is relevant to inform future strategies for injury prevention.

They also assist in the analysis of claim trends, identification of priority target areas and help in the development of programmes to reduce the number and cost of injuries to New Zealanders.

The ACC system is unique to New Zealand as treatment injuries or injuries caused by accidents are covered by the compensation system.

Whether or not this encourages a higher AE report rate by patients and medical professionals is unknown, but without the risk of litigation, it may be likely.

A treatment injury is caused as a result of seeking or receiving treatment from a registered health professional that is not a necessary part or ordinary consequence of that treatment.

Interestingly, whilst acupuncturists are recognised as providers under the ACC Act of 2001, they are not included within the definition of registered health professionals.

Therefore, care provided by acupuncturists falls outside treatment injury under ACC legislation. This results in reporting from ACC where those treatment injuries classified as adverse events for acupuncture treatment have occurred in the hands of other registered health practitioners.[37]

Currently in New Zealand this group consists of general practitioners, physiotherapists, and any other health practitioners that are regulated under legislation.

Between 1 January 2008 and 31 December 2012, ACC accepted 16 treatment injury claims relating to acupuncture (Table 2 - AEs reported to ACC). Of these 16 accepted claims, 13 related to physiotherapy and the remaining 3 to general practice.

The majority of the injuries would be considered as avoidable injuries such as infection which amounted to almost a third of the claims, followed by burns and bruising.

ORGANISATION	NUMBER OF AE REPORTS	AE
ACC	<4	Burn
ACC	<4	Foreign body
ACC	<4	Haematoma/bruising
ACC	5	Infection
ACC	<4	Lung injury
ACC	<4	Nerve injury
ACC	<4	Skin injury
ACC	<4	Strain or sprain
*ACC < is used where the number of claims is less than 4		

Table 2 - AEs reported to ACC

Government Agency

The main role of the Health and Disability Commissioner is to ensure that the rights of consumers are upheld.

This includes making sure those complaints about health or disability service providers are taken care of fairly and efficiently.

Over the past five years, the New Zealand Health and Disability Commissioner have closed 14 complaints about acupuncturists (Table 3 - AEs reported to HDC).

Again it is not clear whether these were with registered acupuncture professionals or other medical or allied professionals performing acupuncture techniques as there is currently no statutory regulation for acupuncturists in New Zealand.

Seven complaints contained allegations of inappropriate touching during examination or treatment, three complaints concerned fees charged and allegations that the treatment aggravated the presenting condition, and one complaint regarding a pneumothorax.

All of these, apart from a pneumothorax which was deemed to be an accident, were avoidable AEs.

ORGANISATION	NUMBER	AE
HDC	7	Sexual assault
HDC	3	Overcharging
HDC	3	Worsening of condition
HDC	1	Pneumothorax

Table 3 - AEs reported to HDC

Educational Facility

The New Zealand School of Acupuncture (NZSA) is the largest and longest standing acupuncture education provider in New Zealand.

The NZSA has a robust accident and AE reporting system. AEs related to patient safety or safe clinical practice must be reported and handled so as to prevent repetition.

Potential risks of treatment are outlined on student clinic consent forms and a verbal consent is required from patients before application of needling or other applied therapies.

In a five year retrospective analysis of the AEs nine complaints (Table 4 - AEs reported at NZSA) or incidents have been lodged.

These included two burns due to cupping, one extreme anxiety attack requiring hospitalisation, one pneumothorax, four reports of used needles not being disposed of correctly and one rubbish bin on fire.

In the case of each incident, detailed follow up occurs. The outcomes of all occurrences are circulated and used as learning tools for quality improvement in education, services and policies.

ORGANISATION	NUMBER OF AES REPORTED	AE
NZSA	2	Burns
NZSA	1	Anxiety attack
NZSA	1	Pneumothorax
NZSA	4	Left needles
NZSA	1	Fire in premise

Table 4 - AEs reported to NZSA

Discussion and future strategies

A reduction in AEs is vital in order to improve the quality of health care and lower the cost of care.

The under reporting of AEs in most medical professions is high[39] and while it is assumed that acupuncture is also subject to under reporting, this remains unknown.

Good reporting systems allow information to be gathered from multiple sources which will allow an analysis of contributing factors and the prevention of recurrence.[40]

Being guided by professional ethics and the principle of non-maleficence, i.e. the obligation of doing no harm to others, should guide the need for a voluntary reporting system.

Avenues for reporting are available and have been identified within the New Zealand setting. The reports and statistics highlighted from the New Zealand five year retrospective analyses, although not definitive, seem to reflect those in published studies reporting on the topic of AE reporting.

However, it remains highly likely that this data is subject to under reporting and the definitions included within the data set in terms of style of acupuncture, practitioner status and education are often unclear.

The avoidable risks merit the most attention when it comes to strategies to improve practice.

Suggested approaches to reduce the number of incidents include practitioner checklists for safe practice.[2]

Concern with damage to underlying tissues is warranted and indicates that practitioners are poorly trained in anatomy.

A valid suggestion from White addressing this is annual refreshers of surface anatomy and needle depths for practitioners.[36]

The risk of transmission of infection has fallen with the introduction of single use sterilised needles, however, this practice is not yet universal.

This of course does not prevent practitioner infection through needle stick injury so continual review of handling procedures paired with semi-regular checks of immune status and recommended immunisation practices may be required.

In addition the standardisation of the consent process within the profession is suggested as this may reduce patient reported AEs that may be a routine side effect of treatment.[14]

Moving forward, the development of a standardised reporting framework for acupuncture including a central repository for AEs would give a more effective means for determining safety and risk ratios.

Professional bodies continue to have a responsibility to maintain standards. We have seen that in New Zealand any reports of AEs are documented and actioned but there remains the need for a continual focus for improvement of practice standards and reporting structures.

Conclusion

In conclusion, the safety of acupuncture cannot be taken for granted.

The reasonable rates of adverse events caused by negligent practice highlight the need for continual review, reflection and continuing education around practice standards.

Current reporting mechanisms and the representation of acupuncture incidents in the literature are not precise with the profession often being misrepresented.

Risk needs to continue to be identified through the examination of frequency and seriousness of adverse events with professional and governing bodies taking a leading role in determining appropriate reporting mechanisms.

Qualified acupuncturists need to continually strive for a safer and more regulated profession to ensure patient safety and best practice.

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Appendix 1 - Summary of AES from the Literature

FIRST AUTHOR	COUNTRY	ARTICLE TYPE	NUMBER OF AE'S (AE - MILD AND/OR MODERATE, SAE - SERIOUS)	INCIDENCE RATE (%)	ADVERSE EVENTS REPORTED
Adams (2001)	Multiple	Systematic Review	AE 279	11.8% (mild)	SAE 25 - 12 cases of thumb deformity, 5 infections, and 1 case each of cardiac rupture, pneumothorax, nerve impairment, subarachnoid haemorrhage, intestinal obstruction, hemoptysis, reversible coma, and over- night hospitalisation. AE moderate - 1 infection. AE mild 253 - crying, pain, bruising, bleeding, and worsening of symptoms
Baldwin of Bewdley E (1997)		Response letter to Ernst (1997)			
Bensoussan (2000)	Australia	Retrospective survey	AE 3222	<1% (1/663)	AE - Fainting (1169), Nausea/vomiting (534), Increased pain (1069), Pneumothorax (64), local Skin infection (128), Psychiatric disturbance (92), Convulsions (80), Other events (86)
Birch (2013)		Response article to He (2012)			
Birch (2004)	Multiple	Summary of Reviews			
Capili (2010)	Multiple	Systematic Review on reporting of AEs	Numbers or percentages of individual studies given.	Not Stated	SAE - 1 pulmonary embolism, 1 myocardial infarction, others not individually described.AE -Pain, haematoma or bruising, tiredness, relaxation, nausea vasovagal symptoms.
Chung (2003)	Multiple	Systematic Review	Numbers or percentages of individual studies given.	5-15%	AE - Needle pain, bruising, aggravation of symptoms. SAE - pneumothorax, spinal cord injury, hepatitis, cellulitis, broken or embedded needles.
Endres (2004)	Germany	Prospective review	SAE 45, AE 14,404	7.50%	SAE - 9 Deaths, 4 falls or trauma, 2 infection, 1 allergic reaction,3 stroke, 5 disc prolapse, 3 cardiovascular problems,1 malignant potis tumor, 17 hospitalisation unknown reason. AE - 1 broken needle, 1 burn, 86 infection, 19 local allergic reaction, 90 pain, 9896 bruising, 1342 collapse/dizziness/nausea/vomiting, 72 tiredness or sleep disturbances, 2494 aggravation of existing problems, 278 neurological or psychological problems, 125 others.
Ernst (2003)	Multiple	Systematic Review	SAE 17 - (Only hepatitis discussed)	Not stated	Markers for hepatitis A (1), B (3), C (13)
Ernst (1997)		Editorial			
Ernst (2010)		Editorial			
Ernst (2001)	Multiple	Systematic Review	Numbers or percentages of individual studies given.	AE - 1-45%, SAE -<0.01%	AE - needle pain (1-45%), tiredness (2-41%), bleeding (0.03-38%), faintness and syncope (0-0.3%), relaxation (Up to 86%). SAE - 2 needle fracture requiring surgical removal, 2 pneumothorax, 1 burns
Ernst (2003)	Germany	Multicenter survey	AE 402	11.40%	AE - 104 haemorrhage (2.9%), 79 haematoma (2.2%), 36 dizziness (1%), <1% fainting, nausea, paresthesia, increased pain.
Ernst (2011)	Multiple	Review of reviews	SAE 95	Not stated	SAE - 5 - deaths, 38 - infection, 42 tissue trauma, 15 other
He (2012)	China	Systematic Review	AE 1038	Not stated	4 main categories; 468 Syncope, 451 organ or tissue injury, 38 infections, 81 other. Included SAE - 35 Deaths, 307 pneumothorax, and 64 subarachnoid hemorrhages.
Hicks (1997)		Response letter to Ernst (1997)			
Janz (2011)	Multiple	Review	Not stated	Not stated	*author unable to determine AEs from 'dry needling' as not specified in the literature.
Kim (2016)	Asia	Retrospective review	SAE 5, AE Moderate - 42 Mild - 50	0.05-6%	AE - 47 Forgotten needle, 37 hypersensitivity (to bee venom), 4 pre syncopic episode, 4 pneumothorax, 2 infection, 3 anaphylaxis (associated with bee venom)
Lao (1996)	Multiple	Review	AE 90	Not stated	AE - 12 Infectious disease transmission, 14 pneumothorax, 8 spinal cord injury, 5 contact dermatitis, others < 5 infection, perichondritis, bacterial endocarditis, septicemia, petechiae, osteomyelitis, spinal infection, cardiac tamponade, compartmental syndrome, renal complications.
Lao (2003)	Multiple	Systematic Review of case studies.	AE 202	Not stated	AE - 94 hepatitis, 9 auricular infection, 15 infection, 26 pneumothorax, 13 spinal cord and nerve injury, 21 other organ or tissue injuries, 11 other, 7 contact dermatitis, 6 petechiae, cutaneous disorders, hypotension, fainting vomiting.
Li (2013)		Commentary			
Lin (2014)		Editorial			
MacPherson (2002)	England	Prospective survey	SAE 43, AE 10920	SAE 0-1.1% AE 15%	SAE - 14 severe nausea, dizziness or fainting, 7 aggravation of existing symptoms, 5 prolonged or unacceptable pain and bruising, 4 psychological and emotional reactions, 2 left needles, 1 burn 8 miscellaneous, 2 unspecified. AE - 6752 systemic reactions including relaxation, tiredness, dizziness, feeling faint. 966 Aggravation to existing symptoms including local pain, bruising, bleeding.
MacPherson (2004)	England	Prospective national survey	SAE 3, AE 1044	AE 10.7%	SAE - 1 Severe back pain, 1 severe skin reaction, 1 MVA due to drowsiness. EA - responses to treatment; 280 Severe tiredness or drowsiness, 103 prolonged or unacceptable pain, 77 headache, 76 worsening of symptoms, 47 sleeplessness, 41 stiffness or numbness, 23 skin infection, 23 diarrhea, <23 agitation, nausea, nightmares, panic, vomiting, fainting, euphoria, disorientation. Responses to behavior or equipment; 55 left needle, 28 moxa burns, <23 pain, unattended needle breaking. Other;' 33 - bruising and needle site, 27 Other, <23 aches and pains, emotional reaction, drowsiness, bleeding and needle site.
MacPherson (2001)		Summary of results (MacPherson 2002)			
Melchart (2004)	Germany	Prospective investigation	SAE 5, AE 6936	7.10%	SAE - 2 pneumothorax, 1 acute hypertensive crisis, 1 exacerbation of depression, 1 vasovagal reaction, 1 acute asthma attack with hypertension and angina. AE - 3202 needling pain, 3114 haematoma, 1346 bleeding, 447 orthostatic problems, 242 forgotten needles, 674 others including skin irritation, worsening of symptoms, headache, fatigue.
Odsberg (2001)	Sweden	Pilot study	AE 2108	16%	AE - 1371 bleeding , 340 bruising, 216 aggravation of symptoms, 50 feeling faint, 38 sweating, 21 extreme fatigue, 2 fainting, 70 other negative side effects.
Park (2010)	Korea	Prospective survey	AE 99	3.20%	AE - Local; 32 Haemorrhage, 28 haematoma, 13 needle site pain, 3 stuck or bent needle, 2 others. Systemic; 1 drowsiness, 1 nausea, 1 headache, 1 dizziness, 3 cramp, 1 insensibility, 2 pain, 7 temporary paresthesia, 1 skin infection, 2 symptom aggravation, 1 other.
Rapson (2003)		Response letter to Chung(2003)			
Uddin (1997)		Response letter to Ernst (1997)			
Vincent (2001)		Editorial			
Wheway (2012)	England	Review of reports within NHS	AE 325	Not stated	AE - 100 Retained needles, 99 dizziness, 63 loss of consciousness, 12 falls, 7 bruising or soreness at needle site, 5 pneumothorax, 39 other.
White (2001)	England	Prospective survey	SAE 43 AE 2135	SAE 0.14% AE 6.7%	SAE - 7 Forgotten needle or patient, 1 cellulitis, 1 burns, 2 allergic reaction, 3 extended pain, 6 fainting, 3 nausea and vomiting, 7 drowsiness and disorientation, 8 neurological and psychiatric symptoms, 5 aggravation of symptoms. AE - bleeding (1.6-5.9%), needling pain (.5-2.5%), aggravation of symptoms (.4-1.8%).
White (2004)		Editorial			
White (2007)		Editorial			
Wilson (2002)		Reponses letter to Vincent (2001)			
Witt (2011)		Response letter to Ernst (2011)			
Witt (2009)	Germany	Prospective observational study	SAE 9,963 AE 19,726	SAE 2.2% AE 8.6%	AE - 14083 Bleeding or haematoma, 711 inflammation, 4681 pain, 1663 vegetative symptoms, , 601 nerve irritations or injuries, 2638 other.
Xue (2010)	Multiple	Update on clinical evidence			
Yamashita (2002)		Response letter to White (2001 and MacPherson (2001)			
Yamashita (2000)	Japan	Observational survey	AE 1237	4.10%	AE - 43 Tiredness or drowsiness, 11 aggravation of symptoms, 4 itching, 3 dizziness or vertigo, 3 faintness or nausea, 2 headache, 1 chest pain, 781 minor bleeding, 229 pain at needle site, 100 petechia, 38 pain or ache post treatment, 31 subcutaneous haematoma
Yamashita (1999)	Japan	Survey	AE 94	0.14%	AE - 27 left needles, 9 haematoma without pain, 8 haematoma with pain, 7 burn, 7 discomfort, 6 dizziness, 6 nausea or vomiting, 6 pain in puncture site, 4 bleeding, 4 aggravation of symptoms, 3 malaise, 3 contact dermatitis, 3 fever, 1 numbness.
Zhang (2010)	China	Systematic Review	AE 479	Not stated	9 spinal epidural haematoma, 35 subarachnoid haemorrhage, 201 pneumothorax, 16 abdominal organ injuries, 6 neck injuries, 5 eye injuries, 3 haemorrhage, 4 motor nerve injury, 4 needle site pain, 9 bacterial infection, 150 fainting, 5 stroke.

Cross-Cultural Differences in Acupuncture: A Review

Short Title: Acupuncture Styles in TEAM

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ABSTRACT

Background: Over time, Chinese medicine spread throughout Asia and developed into distinguishable styles of acupuncture in China, Japan, Korea and possibly Taiwan.

Aims: This study sought to classify, clarify and describe acupuncture styles in China, Japan, Korea and Taiwan.

Methods: A systematic search was conducted using: University of New England e-search resources, CINAHL (1998 to January 2015), ProQuest (1980 to January 2015), PubMed (1980 to January 2015) and Google Scholar (1980 to January 2015). Data was collated and coded into philosophical concepts, diagnostic methods and treatment principles. Patterns of relationships between styles were examined.

Results: Twenty-eight articles met the inclusion criteria. Features of Chinese acupuncture include pattern identification and syndrome differentiation as well as the four diagnoses. The solicitation of 'De-qi' during needle stimulation is typical. Although encompassed in Chinese acupuncture as well, emphasis in Japanese acupuncture is placed on the theory of five phases, meridians and collaterals, palpation and relatively light needle stimulation. Korean acupuncture is based on a constitutional model and uses systematic treatments with substance injection into body loci and microsystem acupuncture. Taiwanese acupuncture was described as analogous to Chinese acupuncture.

Conclusion: There is a variable degree of consistency and reliability in the literature addressing acupuncture styles internationally. There appears to be a common pool of philosophical concepts, Chinese in origin, which are fundamental across all styles and have influenced the respective diagnostic methods and treatment principles in varying degrees. Japanese and Korean acupuncture styles have evolved from this, whereas details of a Taiwanese acupuncture style is limited and is assumed to be Chinese.

KEYWORDS Acupuncture, acupuncture style, classification, China, Japan, Korea

Introduction

The Standards for Reporting Clinical Trials in Acupuncture (STRICTA) protocols[1] recognise the diversity of acupuncture philosophy, diagnosis and treatment and necessitate the inclusion of details pertaining to style-specific techniques and approaches used in clinical trials to contextualise the practice of acupuncture within current clinical methodologies.

Despite the recognition of differences in style, there is only a limited official definition and analysis of various approaches to acupuncture.[2] No single definitive guide has been created which classifies, clarifies and compares the philosophical concepts, diagnostic methods and treatment principles of acupuncture across East Asia.

A comprehensive analysis of the literature available on the knowledge of acupuncture styles is needed to ascertain any inconsistencies, misrepresentations and further details on the diversity of international acupuncture styles.

This review examined how Chinese, Japanese, Korean and Taiwanese acupuncture styles have been classified and attempted to clearly distinguish and understand the different approaches to acupuncture in Traditional East Asian Medicine (TEAM).

This research also aimed to outline the diversity of acupuncture practice and highlight theoretical and practical adaptations.

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Methods

A literature search was conducted to identify publications regarding the similarities and distinguishing features of acupuncture styles categorised by country of origin. A key word search including a combination of the following terms was conducted: Chinese, Japanese, Korean, Taiwanese, acupuncture, acupuncture style, classification, clarification and oriental medicine.

In January 2015, an electronic database search was conducted using the following databases: University of New England library catalogue and e-search resources, CINAHL (1998 to January 2015), ProQuest (1980 to January 2015), PubMed (1980 to January 2015) and Google Scholar (1980 to January 2015). The titles and abstracts of the papers identified by the search were examined and included according to the inclusion and exclusion criteria. Additionally, the reference lists from retrieved studies were examined for supplementary sources which were then obtained and examined. To widen the search, an author search was performed using the electronic databases.

Included studies were required to attempt to clarify, classify and compare Chinese, Japanese, Korean or Taiwanese acupuncture. The studies must have included a description of the defining characteristics of the style such as philosophical concepts, diagnostic methods and treatment principles. These themes were selected because they were identified as some of the most important aspects of clinical practice.[3,4] The articles included in this review were restricted to English language publications after 1980. This review focused on literature after 1980 in order to collate data which informed modern assumptions on the similarities and differences between styles. Textbooks were not included in the review but any government or official organisation reports or publications, conference literature and journal articles were accepted. The literature is summarised in Appendix 1.

Results

Twenty-eight articles were sourced. Seven discussion papers focused on the characteristics of Chinese acupuncture, five discussion papers on Japanese acupuncture and four on Korean acupuncture. Eight publications attempted to define and compare combinations of styles. Two articles were World Health Organisation (WHO) publications, two reported randomised controlled trials, one article was a modified Delphi process and two books were included. Taiwanese acupuncture was not identified as a distinct style.

Chinese acupuncture

Six articles presented a dichotomy within Chinese acupuncture: that of pre-cultural revolution China and the standardised Traditional Chinese Medicine (TCM) of the People's Republic of China.[5-10]

All other literature described only a single system of Chinese medicine. One article validated Taiwanese acupuncture as a style but included it under the aegis of Chinese acupuncture.[11]

Philosophical concepts

Differentiation of syndromes and pattern identification was identified by nine articles as the fundamental philosophical concept of TCM.[1,2,6, 8-10,12-14]

Other literature identified Yin/Yang, five viscera and six bowels, six excesses, five phases, six meridians, febrile disease theory, triple burner theory, meridian and collaterals and the fundamental substances as core philosophical concepts.

Fruehauf[9] and Dale[6] make mention of Chinese traditional cosmology as a fundamental concept for acupuncture practice.

In addition, Lao[15] and Deng[16] included body microsystem acupuncture in Chinese acupuncture. Barnes[5], Kaptchuk[10] and Fruehauf[9] included religious and folk traditions, such as the belief in demons, ghosts, spirits, souls and Feng Shui as part of the philosophical basis of Chinese acupuncture.

Kim, Pham and Koh[13] and Low and Ang[17] emphasised Taoism as the central philosophy in Chinese acupuncture.

Deadman et al.[7] suggested that the diversity of philosophy is an important element in Chinese medicine and the practitioner's ability to utilise different concepts clinically is a defining feature of Chinese acupuncture.

Diagnostic methods

Literature describing diagnosis in Chinese acupuncture included the four diagnoses (palpation, observation, olfaction/ listening and inquiry[2]), as the core diagnostic method.[8,10,12-14]

Observation of the tongue and palpation of the pulse were emphasised by two sources.[1,18] Only one paper included meridian diagnosis as a diagnostic method in Chinese medicine.[16]

Treatment principles

Needles, moxibustion, massage, cupping, ice, gua sha, electricity, magnets, ultrasound, light, crystals, intradermal implants, energy transfer with touch, energy transfer without touch and laser were identified as treatment tools in Chinese acupuncture.[6,9,12,15,18]

Six articles indicated that 'De-qi' during treatment was strong and necessary.[1,7,8,10,12,15]

The strong 'De-qi' needle sensation described by Deadman et al.[7] is suggested as being more traditional and real as opposed to styles which do not emphasise a strong 'De-qi' sensation.

Treatment around "every other day"[8] or a possible seven treatments in 10 days for acute conditions[10] described the frequency of treatment in Chinese acupuncture.

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One article indicated that needle gauge in Chinese acupuncture was commonly 0.20 to 0.28 [15] while another specified a range from 0.32 to 0.38.[19]

The findings from Ahn et al.[18] suggested Chinese acupuncture needle insertion is relatively deeper than other styles which is confirmed in comparison to Japanese acupuncture by other authors.[1,6,19-21]

Japanese Acupuncture

Four articles recognised several different schools of thought within Japanese acupuncture.[15,18,21,22] Other literature described only a single Japanese acupuncture style.[8,10,19,20,23] The only description of traditional medicine as practiced in Japan is described by the WHO[2] as Kampo medicine, which is herbal medicine.[14] The WHO does not recognise a Japanese style of acupuncture. Chaudhury and Rafei[24] also do not recognise the existence of Japanese acupuncture, although they do acknowledge Chinese and Korean acupuncture as distinct styles.

Philosophical concepts

Three articles stated that the philosophical concepts of Chinese acupuncture formed the fundamentals of Japanese medicine.[2,20,21] Lao[15] and Kaptchuk[10] acknowledged that there were differences between Japanese and other styles but did not describe any.

Kobayashi et al.[20] stated that Japanese acupuncture emphasises the theory of meridians and collaterals which was supported by Flaws[8] who added five phase theory as an important concept.

Yasui[21] was in agreement and stated that the classical Chinese texts *Plain Questions, Miraculous Pivot, Classic of Difficult Issues* and *the A-B Classic of Acupuncture and Moxibustion* form the basis of the Channel (Meridian) Therapy school which, is synonymous with Japanese acupuncture for Lao[15] and Kobayashi et al.[20]

As in TCM, modern science also featured in the philosophical concepts of Japanese acupuncture.[19,21]

Diagnostic methods

Every paper which addressed diagnostic methods in Japanese acupuncture emphasised the importance of palpation.[6,8,18-21,23]

Katai[19], Ahn et al.[18] and Yasui[21] underscored meridian palpation as characteristic of Japanese acupuncture while abdominal diagnosis was described as a feature of the diagnostic methods of Japan.[6,20]

The four diagnoses are listed as a diagnostic method of Japanese acupuncture in only one article.[19]

Treatment principles

Treatment in Japanese acupuncture was described as systematic, empirical[8,20] and adhering to the principles in classical Chinese acupuncture literature.[8,21] Japanese acupuncture needle stimulation was reported as comparatively milder than the Chinese and Korean styles [6,7,18-20] by using thinner needles[1,19-21] which are inserted more superficially.[6,18-22] Modern stimulation methods such as electro-acupuncture are also reportedly utilised in Japanese acupuncture.[19]

Korean Acupuncture

Several schools of thought exist within Korean (Koryo) acupuncture, most of which fall into the category of constitutional acupuncture.[2,15,25-27] Sop[28] and Kaptchuk[10] acknowledged the existence of an independent Korean acupuncture style while Flaws[8] identified it together with Japanese acupuncture. Outside of constitutional acupuncture, the major tradition within Korean acupuncture is primarily symptom based.[27,29-31]

Philosophical concepts

Korean acupuncture is based on Chinese acupuncture philosophical concepts.[2,13,25,27-30]

Flaws[8] suggested that Korean acupuncture has a similarity with Japanese acupuncture in emphasising the meridians, collaterals and five phase theory. Other authors[2,25-27, 29,30] supported Korean acupuncture as an individualised approach based on psycho-somatic constitutional frameworks.

These frameworks rely primarily on the theory of the meridians, collaterals, six meridians and five phases.[13,25,27,29]

Modern scientific concepts underpinning the use of electro stimulation[29] and the knowledge of physiological effects of injected substances are also important[27,30] in demonstrating the philosophical concept of microsystems and their significance in Korean acupuncture.[2,27,29-31]

Although it seems Korean acupuncture resembles Chinese acupuncture; Kim et al.[13] asserted that the Sasang style of Korean acupuncture is more similar philosophically to traditional Indian medicine than Chinese medicine due to the shared emphasis of constitutional differences among individuals.

Diagnostic methods

Flaws[8] is the only author who stated that palpation is an important aspect of diagnosis in Korean acupuncture. Other authors[2, 15,25,27,29,30] all concur that the single most identifiable feature of diagnosis in Korean acupuncture is the determination of the individual constitution.

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Several different styles of constitutional diagnosis are described in the literature: Saam,[26,27,30] Sasang,[13,25-27, 29] Taegeuk[27] and the Eight Constitution.[26,27,30] The pulse may also be used in assessing a patient's constitution.[27] Those who treat symptomatically may use a pulse checking machine, sphygmomanometer or electrocardiogram to aid in diagnosis.[29]

Treatment principles

Systematic treatment is often conducted according to the five phase theory.[27, 29] When treating according to the Eight Constitution method, needle insertion is superficial, quick and a needling sensation must be elicited in the patient.[27] Electricity and laser may be used to stimulate the needle insertion site[29] and herbs and bee venom may be injected into the needle insertion sites.[27,29,30] The attachment of herbal plasters to acupuncture loci is also common.[31] Holographic hand acupuncture is a systematic treatment based on the presenting symptoms and is an important treatment principle in Korean medicine.[2,27,29-31]

Discussion

The dichotomy between pre and post Chinese Cultural Revolution traditional medicine has opened debate about the suitability of modern TCM as a style.[8-10] Some criticise TCM as a herbalisation of acupuncture,[8-10] while others seem comfortable with its application as best acupuncture practice.[2,12,15,17] Heterogeneity of acupuncture styles exist in Saam and Taegeuk acupuncture in Korea[27,30] and Meridian Therapy and Taikyoku Therapy schools in Japan. [15,21] However, these appear to exist without contention in comparison to post Chinese Cultural Revolution and modern TCM acupuncture which are seemingly in conflict, especially when described by authors from the West. It is unknown whether this dichotomy is a product of observers from outside of China or a true representation of phenomena within the country itself.

There is a variable degree of consistency in the literature addressing characteristics of Chinese, Japanese and Korean acupuncture while little mention of a Taiwanese style. A common pool of philosophical concepts, Chinese in origin, appears to be the base of Korean and Japanese acupuncture. Pattern identification and syndrome differentiation is the prevailing conceptual framework in Chinese acupuncture[1,2,6,8-10,12-14] while Japanese acupuncture reportedly focusses on the meridians and five phase theory.[8,20,21] Korean acupuncture practice emphasises the five phases and six meridians in its constitutional approach[13,25,27,29] while microsystem acupuncture is a characteristic of symptomatic treatment.[2,27,29-31]

Even though five phase and six meridian theory is part of the matrix of pattern identification and syndrome differentiation[33], Japan and Korea have emphasised these aspects in their acupuncture in contrasting approaches compared to each other and the Chinese.

The utilisation of the four diagnoses is fundamental in Chinese acupuncture[8,10,12-14] while palpation is seemingly more important in Japanese acupuncture[6,8,18-21,23] than it is in China or Korea. In order to ascertain which constitutional category a patient falls into, Korean acupuncture seems to make greater use of observation and inquiry than other styles.[27,29,30] From the literature it is difficult to suggest what diagnostics are favoured in Chinese acupuncture; however, inquiry, tongue observation and pulse palpation appear very important.[14,18]

Chinese acupuncture employs larger needles, inserts deeper and uses a greater amount of needle stimulation than the Japanese.[1,6,7,18-22] Superficial needle stimulation in Japanese acupuncture finds similarity with the Korean Eight Constitution method. However, little information was found which describes the needles or stimulation methods of Korean acupuncture in general. The injection of substances into the body at specific acupuncture sites and holographic hand therapy appear to be defining characteristics of Korean acupuncture treatment.[27,29,30]

Even though there appears to be great diversity in acupuncture styles, Deadman et al.[7] suggested that the difference between the therapeutic effects of the styles in the clinic would be very small and studies focusing on the clinical effectiveness of different styles would not result in any meaningful clinical difference. Perhaps this sentiment reflects a limited understanding of acupuncture styles internationally. TEAM has migrated through the culturally diverse East Asian regions over several centuries, and while maintaining continuity with medicine from China, adapted independently in countries like Japan and Korea within local contexts.[34-36] The practice of acupuncture is based on a diversity of heterogeneous ideologies that include a complex array of humanistic, holistic and scientific settings[37] which have developed and been re-interpreted resulting in divergences that represent cultural adaptation and stylistic differences in different cultural environments.[1,4]

There is a lack of research focused on the classification, clarification and description of acupuncture styles in countries such as Japan, Korea and Taiwan, and it is unlikely that the current state of English language literature addressing acupuncture practices in Japan, Korea, Taiwan and possibly other countries is complete. Without fully understanding each style in detail, it may seem that there is little difference between them and that they produce similar therapeutic results.

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Limitations

Nineteen of the 28 articles were discussion papers and represent the opinions and experience of TEAM literati from different backgrounds. The inclusion criteria were broad in order to collect as much information as possible and the quality of discussion varied due to the lack of supporting evidence for the claims of the author(s). As most of the literature was discussion papers, reliability may depend on the credibility and background of the authors which is difficult to document and compare.

Most articles described a single style of acupuncture: Chinese, Japanese or Korean. The articles which directly[11,13,14,18] compared styles typically focused on the differences between Chinese and Japanese acupuncture.Perhaps this reflects the effort of the proponents of Japanese acupuncture to identify their style as distinct from the more established Chinese acupuncture. Alternatively, it could be indicative of the growing popularity of Japanese acupuncture. Only one article[13] directly compared Korean acupuncture with another style. This probably suggests that it is an emerging area of interest and has not yet been fully explored.

It is possible to see distinctions in styles between Chinese, Japanese and Korean acupuncture as described through the literature. However, it could be that authors who are affiliated with a particular school of thought within a style have risen to popularity and have been able to propagate their ideas. The schools of thought with more political or publishing power may have mistakenly become synonymous with a style of acupuncture.

For example, it could be the case that proponents of the Meridian Therapy School in Japan have had greater exposure of their ideas in English and therefore an opinion may have been formed that Japanese acupuncture is Meridian Therapy. The same could be said of constitutional medicine in Korea or TCM in China where schools of thought outside of the standardised knowledge base could have been under-exposed.

Conclusion

The literature shows that there is a multiplicity of theory and variation in practice of acupuncture in China, Japan and Korea. However, philosophical concepts from China are the foundation of both Japanese and Korean acupuncture practice. From the fundamental philosophical concepts of Chinese medicine, Japanese and Korean acupuncture styles have developed into distinct and separate styles. Information about Taiwanese acupuncture is extremely limited and assumed to be the same as Chinese acupuncture.

More quality primary research is necessary to develop a complete understanding of cross cultural differences in acupuncture.

Such research could include long-term ethnographic studies so that an in-depth description of the current practice of acupuncture styles as performed by practitioners in East Asian countries can be obtained.Accurate information of philosophical concepts, diagnostic methods and treatment principles from China, Japan, Korea, Taiwan and possibly other countries and cultures will enrich TEAM knowledge and contribute to the education and practice of acupuncture internationally. A comprehensive classification and clarification of acupuncture across Asia will provide a solid theoretical platform, so that acupuncture in Australia can continue to be developed and guided by the insights of a diverse array of well-established and evolved practices.

Clinical Commentary

There is a greater depth and variety to acupuncture practice than is generally understood. Our assumptions about what acupuncture is or should be may not be based on reality and could potentially hinder the development of acupuncture education, research and practice.

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TABLE 1 – INCLUDED STUDIES

Author	Literature type	Styles Compared or Clarified	Summary	Main Conclusions
Ahn et al. (18)	Randomised clinical trial	CM and JM	Subjective experiences on the efficacy of 2 different approaches to acupuncture	Differences exist in the clinical treatment and diagnosis between Chinese and Japanese of acupuncture
Baker (29)	Discussion paper	KM	Historical discourse of Korean medicine	Korean acupuncture is constitutional medicine; Systematic treatment through scientific insight and microsystem acupuncture
Barnes (5)	Discussion paper	CM	Qualitative interviews on the adaptation of CM in USA	CM expresses symptoms somatically
Cha et al. (25)	Discussion paper	KM	Historical discourse on the schools of thought within Korean acupuncture	Korean acupuncture is constitutional medicine; Systematic treatment with microsystem acupuncture and substance injection into acupuncture loci
Chae et al. (26)	Literature review	KM	Review of MRI studies on brain response to Korean acupuncture	Korean acupuncture is constitutional medicine
Chaudhury and Rafei (24)	Book	CM & KM	WHO compilation of traditional medicine in Asia, an overview of country specific paradigms	Differences between Chinese and Korean acupuncture exist only through differences in the public health system
Dale (6)	Discussion paper		Comparative assay of systems and methods in acupuncture	Traditional and modern methods of acupuncture have culture specific elements traceable to China, Japan and Korea
Deadman et al. (7)	Discussion paper	CM	Discussion between therapists on Chinese acupuncture in the 'West'	Differences exist between Chinese and other styles of acupuncture
Deng (16)	Chapter in WHO report	CM	Scope and application of acupuncture	Acupuncture in China is used for a range of conditions and uses microsystem philosophies and meridian palpation in treatments
Dong and Zhang (12)	Chapter in WHO report	CM	An overview of TCM	Chinese medicine is based on a variety of traditional philosophical concepts including Yin/Yang, five phases, zang/fu, channels and collaterals etc.
Flaws (8)	Discussion paper	CM	Personal insights into Chinese acupuncture in the 'West'	Post Cultural Revolution Chinese acupuncture is distinguishable from Japanese, Korean and pre Cultural Revolution Chinese acupuncture
Fruehauf (9)	Discussion paper	CM	Discourse on the disparity between pre and post People's Republic of China traditional medicine	Differences exist in pre and post Cultural Revolution Chinese acupuncture. Post Cultural Revolution Chinese acupuncture is not based on classical Chinese medicine concepts
Kaptchuk (10)	Discussion paper	CM	Discussion between therapists on Chinese acupuncture in the 'West'	Alleged differences exist between Chinese, Japanese and Korean acupuncture
Katai (19)	Discussion paper	JM	Personal reflection on the emphasis of palpation in Japanese acupuncture	Palpation is the defining feature of Japanese acupuncture diagnostics and therapeutics
Katai (23)	Discussion paper	JM	Personal reflection on characteristics of Japanese acupuncture	Japanese acupuncture is systematic, focuses on palpation in diagnosis and treatment and is relatively mild in stimulation
Kim JY et al. (13)	Discussion paper	CM, KM & IM	Comparative commentary on Sasang, Chinese and Indian medicine	Korean Sasang acupuncture is constitutional medicine and is more similar to Indian than Chinese medicine
Kim YS et al. (30)	Discussion paper	KM	Review of Korean acupuncture clinical trials	Korean acupuncture is constitutional medicine; Systematic treatment with microsystem acupuncture and substance injection into acupuncture loci
Kobayashi et al. (20)	Discussion paper	JM	Historical examination of Japanese acupuncture	Japanese acupuncture began to take divergences from Chinese acupuncture from around 1635 and now has identifiable features
Lao (15)	Discussion paper	CM	Basic introduction to Chinese acupuncture techniques and devices	Chinese acupuncture has distinct defining features separate to Japanese and Korean styles
Low and Ang (17)	Discussion paper	CM	Explanation and description of CM concepts and treatment	Taoism is the core philosophical ideology of Chinese medicine
MacPherson et al. (1)	Modified Delphi process	Acupuncture in general	Explanation of STRICTA guidelines	Differences in acupuncture styles exist between China, Japan and Korea and are important in clinical treatment
Mitsuhata (22)	Discussion paper	JM	Discourse on minimal stimulation acupuncture	Minimal stimulation acupuncture is a distinct style of JM where needles are inserted very superficially
Park H et al. (31)	Randomised, double blind, controlled trial	KM	Clinical trial on the use of Korean Hand Acupuncture	Korean acupuncture utilises systematic treatment with microsystem acupuncture
Park H-L et al. (11)	Literature review	CM, JM, KM & TM	Comparison of traditional health care systems in East Asia	Acupuncture was developed similarly in China and Korea while somewhat differently in Japan. CM includes TM
World Health Organisation (2)	Book	CM, JM & KM	Definitions of standard terminology in Traditional East Asian Medicine	Terms from Chinese, Japanese and Korean medicine are explained
Yasui (21)	Discussion paper	JM	Personal reflection on the different schools of thought within Japanese acupuncture	Japanese acupuncture is systematic, focuses on palpation in diagnosis and treatment and is relatively mild in stimulation. Within Japanese acupuncture several different schools of thought exist
Yin et al. (27)	Discussion paper	KM	Overview of Korean acupuncture	Korean acupuncture as constitutional medicine. Systematic treatment with microsystem acupuncture and substance injection into acupuncture loci
Yu et al. (14)	Discussion paper	CM & JM	Comparative review of JM and CM	Japanese medicine as a simplified version of Chinese medicine

CM – Chinese Medicine; IM – Indian Medicine; JM – Japanese Medicine; KM – Korean Medicine; TM – Taiwanese Medicine

The Rich Resonance of Huangdi Neijing and Its Clinical Use

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ABSTRACT

The contributions of the various authors of the Neijing are reflected in the books' rich philosophy, theory and application of medical concepts and acupuncture and have laid the foundation for the practice of medicine in Chinese civilisation through to the present day.

The concept of resonance ying 應 encourages an exploration of the various pairings of the channels Jingluo 經絡.

The mapping out of the pairings reveal which ones have stronger resonating relationships and are therefore given priority in the selection of channels to treat. Flexibility and versatility are thereby afforded to the clinician precisely because the acupuncture channel structure perceived by the authors of the Neijing is organic, complex and dynamic.

KEYWORDS huangdi neijing, suwen, lingshu, acupuncture, resonance, shen, channel pairings

Introduction

In the past ten years, there has been a growing interest in the classics of Chinese medicine outside mainland China, leading to many claims, counterclaims of authentic practice in Chinese medicine, and hostilities between adherents of different classical medical texts (see footnote 2 in Neal, 2013).

The approach taken in this paper is a preference for talking about acupuncture in the *Huangdi Neijing* rather than *Neijing* acupuncture.

One of the strongest reasons for saying it in this way is that there is more than a single author in the *Neijing*, first, between the two volumes, *Suwen* and *Lingshu*, and second, within each of those books too.

To speak of '*Neijing* Acupuncture' implies a coherent coordinated authorship or a single authorship of the *Neijing*.

It is therefore, important that we understand as much as we are able, the historical context of the *Neijing* and the politics leading to its compilation.

Then, we will, while bearing these in mind, look at some key concepts and how they frame acupuncture, both its clinical strategies and its application.

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We will examine the text and work through the evidence for the pairing of channels and seek to understand how this works clinically.

History

The extant text that we now have and know as the *Huangdi Neijing* 黃帝內經 (henceforth, *Neijing*), consisting of two volumes, the *Suwen* 素聞 (Basic/Foundational Questions/Enquiries) and the *Lingshu* 靈樞 (Divine/Miraculous Pivot) is based on the official version of the early Song dynasty.

That in turn was based on the version compiled by Wang Bing 王冰 (762 CE).[1-4]

The *Neijing* is believed to have existed in a different form and under different names in the Han Annals during the Eastern Han dynasty prior to its compilation and later given the title we now know it by (25-220 CE).[3]

The first thing to note is that the *Neijing* was compiled by Wang Bing. This accounts for some of the discrepancies in style and grammar noted by sinologists.[4,5]

That includes knowing the compilation was edited, (re) arranged, commented on and possibly amended by Wang Bing.

The second thing to note is that there were seven chapters that were inserted into the *Suwen* to make up 81 chapters. The seven chapters are 66-71 and 74.

These chapters elaborate on the concept of *wuyun liuqi* 五運六氣 / Five Major Changes Six Qi which was developed most likely in the Tang dynasty (618-907 CE).[3,4]

What this suggests is that there is no single approach to Chinese medical theory and acupuncture even from the earliest time.

The *Suwen* itself records that people living in the four regions developed different medical methods: stone needles in the east, herbs *duyao* 毒藥 in the west, moxibustion in the north, acupuncture needles in the south, massage in the central region.[3]

> "The sages make use of various therapeutic methods and select the most suitable one (according to the pathological conditions of the patients). The reason why different therapeutic methods can cure (the same) diseases is that (the doctors) have fully understood the diseases and grasped the essential principle of treatment. [3]
> 故聖人雜合以治，各得其所宜，故治所以異而病皆愈者，得病之情，知治之大體也.[6]"

That plurality continued through the centuries and remains with us today despite the efforts to present an homogeneity within Chinese medicine.[2,7]

For instance, the system of *wuxing* 五行 Five Phases (Elements) does not fit lock and key with that of the *yinyang* 陰陽 school. Yet both concepts are used extensively and together within both the *Suwen* and the *Lingsh*u.

Inevitably, this changing plurality ought to draw our attention to our situatedness in time and space vis-à-vis the classics and as physicians. As Edward Neal puts it in his discussion on what he calls '*Neijing* acupuncture',

> "[t]he one critical thing in relation to Chinese classical texts is that they are continuously engaged with, not definitely answered. I write from a particular point of view, from a specific time and place, with certain limitations and with an understanding that is constantly evolving and being revised. These articles simply represent certain thoughts at a moment in time. I also come to this work as a practising physician and my work involves trying to understand how these texts can be taught and used to address a variety of pressing global health problems.[8]"

It is for this reason, combined with an attempt to grasp how the Neijing can deepen our understanding and practice of acupuncture that we look at the context in which it was written and compiled initially.

The cosmology of the earlier chapters of the *Neijing*, I argue, influences how we subsequently interpret the texts in relation to the channels and their application in acupuncture. We first turn to the political situation around the time of the *Neijing*.

Politics

The first unification of imperial China occurred under Qin Shi Huang, establishing the Qin dynasty (221-207 CE). He consolidated and tightened his control over the empire through various means.

Prior to his conquest, different states had their own currencies, standards of measure, written scripts, etc.

It has been postulated that in the Han dynasty, the spoken language of the court and the intelligentsia is more akin to modern Kejia 客家(Hakka) or Fujian 福建 (Hokkien), not Mandarin and certainly not modern Mandarin Chinese.[26]

Qin Shi Huang standardised everything and destroyed all that did not conform.[9] The rewriting of history and attempts to influence/control the way the population think and therefore act, are not modern phenomenon nor the monopoly of ideologies such as Nazism.

Such acts should encourage us to take a hedging position when reading the classics of Chinese medicine, especially those that date prior to the Qin-Han era and the two to three hundred years after 220 BCE.

Such destruction and the assumed accompanying attempts by the intelligentsia and aristocracy in hiding their previous books go quite a way to explain why texts like the Neijing are compiled from various sources into one book.[3,4,10,11]

The actions of Qin Shi Huangdi are exemplary of him imposing a single worldview on his court and subjects and destroying everything that does not support his regime. Admittedly, some texts do survive in various conditions, for example, the anti-authoritarian philosophy of the *Zhuangzi*.

The Han dynasty (221 BCE–220 CE) that followed soon after the fall of the Qin dynasty continued the effort to exert control over the empire. Thus, the collected versions of the *Neijing* assert a cosmology conducive to an imperial state,[2,4,5,11,12] making it a book(s) of doctrines rather than a clinical manual,[5,12] especially when compared with the *Shanghan Zabing Lun* 傷寒雜病論.

Cosmology

If the *Neijing* is not a clinical manual in the tradition of the *Shanghan Zabing Lun*, it raises the question whether the former is nothing more than a philosophical treatise divorced from praxis.

If that were the case, it would imply that Chinese medicine is built on shaky foundations.

On the contrary, it is suggested that the very cosmology of the *Neijing*, specifically of the *Suwen,* gives clinicians a rather strong grasp and guide to the practice of Chinese medicine, particularly in the application of acupuncture.

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Suwen chapter eight spells out the relationship of the *zangfu*: the Heart is the monarch, the Liver the general, the Lung the prime ministers, and so forth.

There is a hierarchy of human organs just as there is a hierarchy of the socio-political structure of imperial China, which in turn is a reflection of the hierarchical nature of the cosmos.

Chapter five of the *Suwen* gives us an idea of how to interpret, use and integrate the cosmology into clinical practice, the first clue being the title.

Ying 應 Resonance

The title of chapter five *Suwen* in Chinese is 陰陽應象大論 *yinyang yingxiang dalun* (There are nine chapters in the *suwen* that are titled dalun 大論 'Great Discussions': chapters 2, 5, 66-71. '*Dalun*' signifies these are pivotal sections and require deep understanding on reading. Note that chapters 66-71 and 74 are intercalated chapters, likely from Wang Bing himself or from the Song dynasty). It has been translated variously as:

1. The Manifestation of Yin and Yang from the Macrocosm to the Microcosm[13]
2. Comprehensive Discourse on Phenomena Corresponding to Yin and Yang[14]
3. Major Discussion on the Theory of Yin and Yang and the Corresponding Relationships Among All the Things in Nature.[3]

All three translations try to capture the meaning of *yingxiang* 應象. Ni[13] explains with the term 'macrocosm to the microcosm' while Unschuld[14] and the translators of the third title use the concept of correspondence/corresponding.

The term *ying* is used throughout the *Suwen* and translated as harmony and harmonious. *Xiang* 象 is elephant but here would mean 'similar'.[15]

Ying 應 according to the *Shuowen Jiezi* 說文解字 is defined as 'sound from the heart' referring to the radical of the word which is *xin* 心/Heart.[15] *Ying* 應was already used before the Han period to mean 'answer', 'correspond'.[16] Agren[16] suggests that 'resonance' describes *ying* 應.

The English word 'resonance' is defined in the Shorter Oxford English Dictionary as the 'reinforcement or prolongation of sound by reflection, as from the walls of a hollow space, or by the synchronous vibration of a neighbouring object; a sound so prolonged, a resonant sound'.[17] Agren states that:

> "[r]esonance ideas, pervasive in Chinese natural philosophy, deal with the understanding of events that appear to occur simultaneously or in synchronicity. Resonance (*ying* 應) is a key concept in that it does not support causal logical analyses but rather emphasizes recognition of analogous patterns in different settings.[16]"

The title of *Suwen* chapter five can thus be rendered, 'A great discussion on the resonating correspondence of yin and yang' (my translation).

It is for this reason that Chinese medicine is also known as a system of correspondence.[5,11,18]

The author(s) insists that the cosmos resonates with(in) the human body in a corresponding manner.

It is this resonance that allows the other pervasive concept in ancient Chinese philosophies of *tiandiren he* 天地人合, the unification of heaven, earth and humans.

Although the three entities are discrete, they can join as one due to their ability to resonate with one another, thereby creating a harmony without losing individuality, corresponding without effacing form.

The resonance takes place because all that exists shares a fundamental ground for its existence, namely, *qi*. Humans arise from the intermingling of Heaven and Earth *qi* 人以天地之氣生 and:

> "[m]an is born on the earth and is endowed with life by the heavens. [Owing to] the integration of the Tianqi and Diqi, man comes into existence. [For those who can] abide by [the changes of] the four seasons, the heavens and the earth are their parents. [Those who] are aware of [the developing rules of] all the things are the sons of the heavens.[3]
> 夫人生於地, 懸命於天, 天地合氣, 命之曰人. 人能應四時者, 天地為之父母; 知萬物者, 謂之天子.[6]"

Hence, chapter five spells out the relationship of the human body and its parts with the cosmos/nature and its parts, both concrete (elements, sounds, taste, etc) and abstract (directions, season, colour) which are familiar to Chinese medicine physicians (see the beginning of *Suwen* chapter eight for elaboration of the roles of *zangfu* in terms of court functions).

These relationships are established and correspond via ying 應, via resonance. It is stated explicitly in chapter nine of the Suwen that the 'four *Xingzang* (the Zang-Organs that store things) and five *Shenzang* (the Zang-Organs that store spirit) which together match the nine kinds of *Tianqi* 故形臟四, 神臟五, 合為九臟以應之也'.[3] Here, the Chinese word *ying* 應 is translated as 'match,' a meaning nevertheless included in the concept of resonance.

Shen神

When the *Suwen* refers to different regions of the body and/or discusses the functions of the *zangfu*, one has to bear in mind this resonance. Thus in chapter two , the doctrine on the maintenance of health rests on being resonant with the changes of the seasons.

The *yinyang* of all in existence work in dynamic tandem precisely because they resonate. It is this interaction of yin and yang that gives rise to *shen* 神:

> The beginning of things is called Hua 化 (transformation), the extreme [development of] things is called Bian 變 (change), undetectable [changes of] Yin and Yang is called Shen 神 (subtle changes) and [those who can master and control such a] Shen 神 (subtle changes) is called Sheng 聖 (sage).(3) Chapter 66
> 故物生謂之化, 物極謂之變, 陰陽不測謂之神, 神用無方謂之聖.(6)

If this sounds vague, it is because *shen* 神 is difficult to describe in words but is grasped and experienced.

In the *Suwen*, Huangdi himself wanted to know what shen 神 is. Qibo obliged him with the following reply:

> Please let me explain Shen (Spirit). Shen (Spirit) is something that you have not heard but are enlightened at first sight and that you immediately understand it but cannot verbally make it clear. It is just like [the situation that] all people look at one object but only you have really seen it. It is just like [the situation that all people are] in darkness but [only you] have a keen vision. And it is just like wind blowing clouds. That is why it is called Shen (Spirit). [In the diagnosis of diseases,] the Three Regions and Nine Divisions are the most important aspects. [If these aspects are well mastered,] it does not make any difference if the theory of the Nine Needles are lost.(3) Chapter 26
> 請言神，神乎神，耳不聞，目明，心開而志先，慧然獨悟，口弗能言，俱觀獨見，適若昏，若風吹雲，故曰神．三部九侯為之原，九針之論，不必存也．(6)

The unity of the cosmos is bound by resonance (*ying* 應), and in which transformations (*hua* 化) occur due to the operations of *yinyang* leading to changes (*bian* 變).

The very subtlest of this transformational change of *yinyang* is known as *shen* 神. If one has *shen* 神, then, in the words of William Blake, one is able:

> To see the world in a grain of sand
> And a heaven in a wild flower:
> hold infinity in the palm of your hand
> And eternity in an hour.(19)

This *shen* 神 is of vital importance. It is a primary quality, aspect, dimension of a physician.

Hence, it is said when one has this *shen* 神, 'it does not make any difference if the theory of the Nine Needles are lost,' as the physician with *shen* 神 will still be able to diagnose accurately and treat effectively. The primordial importance of *shen* 神 in Chinese medicine cannot be overemphasized:

> 'The most important thing for treating diseases is making no mistake in examining the countenance and pulse. Correct examination [of the countenance and pulse] is the essential principle. Errors in distinguishing the favorable from the unfavorable [changes of the countenance and pulse will result in] disagreement between the Biao (the diagnosis and treatment) and Ben (the pathological changes of the patients), inevitably leading to depletion of Shen (spirit or vitality) [in treating diseases] and national subjugation [in governing a country].(3) Chapter 13
> 治之要極, 無失色脈, 用之不惑, 治之大則. 逆從到行, 標本不得, 亡神失國.(6)"

It is well-known that people with severe clinical depression struggle not just with life but with adhering to any treatment.

Their *shen* is dispersed and with it, any motivation, any ability to look forward to anything.

> "If the *Shen* is not lost, the illness is curable; [if] the *Shen* is lost, the illness is incurable.(3) Chapter 13
> 閉戶塞牖, 繫之病者, 數問其情, 以從其意, 得神者昌, 失神者亡.(6)"

The same can be said for the physician and the patient. Both must have *shen*, one to treat, the other to defeat the illness.

Shen 神 is what underpins medicine in the *Huangdi Neijing* in both the *Suwen* and *Lingshu*.

One would go so far as to say, *shen* 神 is the directing mind of all Chinese medicine.

The concepts of ying 應 and *shen* 神 frames an understanding of acupuncture practice and strategies as contained within the *Suwen* and *Lingshu*, and frees the practitioner from a mechanical, point-function/action approach advocated by modern traditional Chinese Medicine (TCM) theory which is now understood as heavily influenced by herbal theories.

Acupuncture

In chapter eight of the *Lingshu*, Huangdi states, 'the use of needling methods must be based on the Spirit 凡刺之法, 先必本於神'.(20)

In the source text, the word translated as 'based' is better translated as rooted, grounded, that, namely, '[*shen* 神] from which the method of needling springs forth' (this chapter elaborates on the *wushen* 五神 though with differences from the standard TCM textbooks).

The centrality of *shen* 神 to the practice of acupuncture is further underscored in chapter 73 of *Lingshu* which details the various techniques of needling.

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Towards the end of the chapter, Huangdi who is the interlocutor, asserts that in the use of needles, one 'must not forget the [cultivation and regulation of] the Spirit' 用針之要, 無忘其神.(20)

The line may be read more clearly as, 'When practising acupuncture, it is required that one must not forget *shen* 神' (my translation). With this *shen*, one can then tap into the resonance of the cosmos and needle according to the 'celestial light' *tianguang* 天光, the movement of the seasons, the 'eight directions' *bazheng* 八正(20)

The cosmology worked out in the *Suwen* is repeatedly applied in the more clinically inclined *Lingshu* as well.

> "What the heaven has endowed man is called De (natural climate). What the earth has endowed man is called Qi (crops). The result brought about the communication between the endowment of the heaven and the endowment of the earth is Sheng (birth).(20) Chapter 8
> 天之在我者德也, 地之在我者氣也. 德流氣薄而生者也.(21)"

Once again, perhaps a clearer reading can be had with, 'Heaven in me is De (also virtue); Earth in me is Qi. The interaction of flowing De and light Qi generates/reproduces/gives birth to (or, has generative powers)' (my translation).

Edward Neal(1) observed the description of *shen* in *Suwen* chapter 66, as stating 'most manifestations found in nature can be described in terms of observable patterns of yin and yang fluctuations, but here the *Neijing* describes another dimension of space/time that transcends the normal observable manifestation of nature; this dimension is called 'shen'.

One of Neal's(10) clinical principles is thus rooted in this primacy of *shen* and the regulation of yin and yang and that is derived from the *Lingshu*, chapter five, where:

> "[t]he essentials of acupuncture practice lie in knowing how to regulate (調) yin and yang. When yin and yang are correctly regulated the *jingqi* (精氣) radiates illumination (光). When the form and qi are harmonised, *shen* (神) is contained within.(20)
> 用鍼之要在于知調陰與陽調陰與陽精氣乃光合形與氣使 神內藏.(21)"

It is valuable looking at the full quotation of the verse as it points to the application of yinyang, namely, transformation and changes, manifestations and resonances of the zang in the pulses:

> "Thus it is said that the rule in applying acupuncture lies in knowing how to regulate Yin and Yang. [Only when] Yin and Yang are regulated [can] Jingqi (Essence-Qi) be replenished, the body and Qi be integrated and the Spirit maintain inside. That is why it is said that excellent doctors regulate Qi, ordinary doctors disturb the Channels and unskillful doctors deplete Qi and threaten the life [of the patients]. So unskillful doctors have to be very careful [in treating patients]. [They] must carefully examine pathological changes of the Five Zang-Organs, the correspondence between the five kinds of pulse [and the Five Zang-Organs], [the state of] Shi (Excess) and Xu (Deficiency) [as well as the state of] softness and roughness of the skin. [Only when careful examination is made can they] select [Channels and Acupoints to perform acupuncture].(20)
> 故曰: 用鍼之要, 在於知調陰與陽. 調陰與陽, 精氣乃光, 合形與氣, 使神內藏. 故曰: 上工平氣, 中工亂脈, 下工絕氣危生. 故曰: 下工不可不慎也, 必審五藏變化之病, 五脈之應, 經絡之實虛, 皮之柔麤, 而後取之也.(21)"

How then should one approach the channels and what strategies can be used clinically, based on the idea of interaction and resonance presented above?

The various pairings of channels and the rationale thereof, will be presented before discussing how they can be applied clinically.

Pairing 1 – P1

First, there is the pairing every practitioner learns from their TCM course which is found in the *Lingshu*, chapter 78:

> "[The Stomach Channel of] Foot-Yangming and [Spleen Channel of Foot-] Taiyin are externally and internally [related to each other]; [the Gallbladder Channel of Foot-]Shaoyang and [the Liver Channel of Foot-] Jueyin are externally and internally [related to each other]; [the Bladder Channel of Foot-] Taiyang and [the Kidney Channel of Foot-] Shaoyin are externally and internally [related to each other]. These are the relationships between] Yin and Yang [Channels of] the foot. [The Large Intestine Channel of] Hand-Yangming and [the Lung Channel of Hnad-] Taiyin are externally and internally [related to each other]; [the Sanjiao (Triple Energizer) Channel of Hand-] Shaoyang and the Pericardium [Channel of Hand-Jueyin] are externally and internally [related to each other]; [the Small Intestine Channel of Hand-] Taiyang and [the Heart Channel of Hand-] Shao yin are externally and internally [related to each other]. These are [the relationships between] the Yin and Yang [Channels of] the hand.(20)
> 足陽明太陰為裏表, 少陽厥陰為表裏, 太陽少陰為表裏, 是謂足之陰陽也. 手陽明太陰為表裏, 少陽心主為表裏, 太陽少陰為表裏, 是謂手之陰陽也.(21)"

This is also stated clearly in *Lingshu* chapter 2:18 and again at the end of chapter 78. For easy reference it is tabulated below:

EXTERNAL CHANNELS	INTERNAL CHANNELS
Foot *Yangming* Stomach	Foot *Taiyin* Spleen
Foot *Shaoyang* Gallbladder	Foot *Jueyin* Liver
Foot *Taiyang* Urinary Bladder	Foot *Shaoyin* Kidney
Hand *Yangming* Large Intestine	Hand *Taiyin* Lung
Hand *Shaoyang Sanjiao*	Hand *Jueyin* Pericardium
Hand *Taiyang* Small Intestine	Hand *Shaoyin* Heart
Internal-external pairing (See appendix under P1)	

Table 1

Pairing 2 – P2

The relationships between and among the channels are not linear nor flat.

Each channel has two 'subnames,' reflecting a different sort of *yinyang* relationship, namely upper and lower, in addition to internal-external.

Taiyang consists of foot Urinary Bladder (lower) and hand Small Intestine (upper). Taiyin of hand Lung (upper) and foot Spleen (lower). Another tabulation can therefore be worked out for the pairs below:

HAND CHANNELS	FOOT CHANNELS
Hand *Taiyang* Small Intestine	Foot *Taiyang* Urinary Bladder
Hand *Shaoyang* Sanjiao	Foot *Shaoyang* Gallbladder
Hand *Yangming* Large Intestine	Foot *Yangming* Stomach
Hand *Taiyin* Lung	Foot *Taiyin* Spleen
Hand *Shaoyin* Heart	Foot *Shaoyin* Kidney
Hand *Jueyin* Pericardium	Foot *Jueyin* Liver
Same name pairing (see appendix under P2)	

Table 2

Pairing 3 – P3

Both the *Suwen* and the *Lingshu* describe the broad functions of the six channels:

> Taiyang is responsible for opening, Yangming for closing and Shaoyang for pivoting …
>
> Taiyin is responsible for opening, Jueyin for closing and Shaoyin for pivoting.[20]
>
> 太陽為開,陽明為闔, 少陽為樞...
>
> 太陰為開,厥陰為闔, 少陰為樞. [21]
> (chapter 6:4, 6) – *Suwen*

This is repeated word for word in the *Lingshu* chapter 5.2, 3.

These words are the basis for the development of what is called 'the *zangfu* extraordinary channel pairing' 脏腑别通 by modern practitioners Young Wei-chieh[25] and Richard Tan (see footnote 1 on page 29).

Like-function is paired with like-function; the channels that open couple each other, as do the channels that pivot and close.

> *Taiyang – Taiyin* – both open
>
> *Shaoyang – Shaoyin* – both pivot
>
> *Yangming – Jueyin* – both close
>
> (see the appendix under P3)

This pairing continues to follow an *yinyang* harmony pattern, the foot/lower is matched with the hand/upper and yin channels are paired with yang channels.

For instance, foot taiyang Bladder is matched with hand *taiyin* Lung, both taiyang and *taiyin* open.

Foot *shaoyang* Gall Bladder is coupled with hand *shaoyin* Heart, both pivot.

See the table below for the full complement of the pairing and P3 in the appendix.

Taiyang	Bladder (foot)	Lung (hand)	*Taiyin*
	Small Intestines (hand)	Spleen (foot)	
Shaoyang	Gall Bladder (foot)	Heart (hand)	*Shaoyin*
	San Jiao (hand)	Kidney (foot)	
Yangming	Stomach (foot)	Pericardium (hand)	*Jueyin*
	Large Intestines (hand)	Liver (foot)	
Zangfu Extraordinary Pairing 脏腑别通 (see appendix under P3)			

Table 3

Pairing 4 – P4

In chapter 10 of the *Lingshu*, the interlocutor, Huangdi, was asked by his advisor Leigong, to elaborate flow of *qi* in the channels.

> "Leigong asked Huangdi, "[The book entitled] 'Jinfu' said that the tenets of needling are based on the Channels to explore their running route, decide their length, differentiate [their relationship with] the Five Zang-Organs internally and Six Fu-Organs externally. I'd like to know the whole theory.[20]
> 雷公問於黃帝曰:「禁脈」之言, 凡刺之理, 經脈為始, 營其所行, 制其度量,內次五藏,外別六府, 願盡聞其道.[21]"

This was duly spelt out and the order in which it was set out remains in current use. The flow of *qi* in this order is made more explicit in chapter 16 of the *Lingshu*:

> Lung (*Taiyin*) ➜
> Large Intestine (*Yangming*) ➜
> Stomach (*Yangming*) ➜
> Spleen (*Taiyin*) ➜
> Heart (*Shaoyin*) ➜
> Small Intestine (*Taiyang*) ➜
> Urinary Bladder (*Taiyang*) ➜
> Kidney (*Shaoyin*) ➜
> Pericardium (*Jueyin*) ➜
> San Jiao (*Shaoyang*) ➜
> Gall Bladder (*Shaoyang*) ➜
> Liver (*Jueyin*) ➜ (the qi then flows back into the *Taiyin* Lung channel to complete and continue the circuit)

The order of *qi* flow above reveals a pattern of three sets. Each set has a self-contained microcircuit.

For instance, in the first, the Hand *Taiyin* Lung channel flows into the Hand *Yangming* Large Intestine Channel, on to the Foot *Yangming* Stomach channel, then to the Foot *Taiyin* Spleen Channel.

The second set has a similar pattern of the hands and feet harmony and self-containment as does the third set. We have also seen the internal and external pairing which need not be repeated.

What I suggest is that chapter 16 of the *Lingshu* not only describes this flow in detail but the first few lines given also points out how else the flow works and therefore allows us to see another pairing of channels that is clinically applicable.

> Huangdi said, "The way that Yingqi (Nutrient-Qi) [is produced] lies in the transformation of food nutrients. When taken into the stomach, [the nutrients of food] are transported into the lung. [Through the dispersion of the lung, the nutrients of food] flow interiorly [to nourish the viscera] and spread exteriorly [to nourish the body]. The essence [of food nutrients] flows in the Channels continuously in circles. This is similar to the law of the heaven and the earth.[20]
> 黃帝曰:營氣之道,內穀為寶. 穀入于胃,乃傳之肺,流溢於中,布散於外,精專者,行於經隧,常營無已,終而復始,是謂天地之紀.[21]

This passage establishes a direct link of *qi* flow with between the Hand *Taiyin* Lung Channel and Foot *Yangming* Stomach Channel and the connection is reiterated in chapter 18 of the *Lingshu*. It therefore suggests that within each set of the micro-circuit, in addition to the internal-external pairing (P1) and same-name hand-foot pairing (P2), there is a crossover pairing, giving us another table:

HAND CHANNELS	FOOT CHANNELS
Hand *Taiyin* Lung	Foot *Yangming* Stomach
Hand *Yangming* Large Intestine	Foot *Taiyin* Spleen
Hand *Shaoyin* Heart	Foot Taiyang Urinary Bladder
Hand *Taiyang* Small Intestine	Foot Shaoyin Kidney
Hand *Jueyin* Pericardium	Foot Shaoyang Gall Bladder
Hand *Shaoyang* Sanjiao	Foot Jueyin Liver
Microcosm (see appendix under P4)	

Table 4

In terms of clinical application for instance, an individual who is disposed to shallow breathing because of a restricted chest can be treated using St 43 *xiangu* 陷谷.

Point St 43 is also chosen based on the mapping/mirroring concept which will be explored later in this paper with the application of the resonance idea examined in the earlier part.

Textbooks on acupuncture indicate it is a point used for foot swelling, facial oedema, abdominal distension, belching, and foot problems.[22-24] Deadman (2007) states it is used for chest fullness. The Master Tung school of acupuncture names the point *menjin* (66.05 by their numbering system) which means door of gold or metal door.[25]

It is thus named because "this point is correspondent to 'Lung,' 'Large Instestine' and 'qi'".[25] Needling St 43 thus releases the constraint of the chest and aids in deeper breathing, increasing the capacity of the lungs themselves to take in more air.

Pairing 5 - P5

Building on the same idea of the flow of *qi* and thus the interconnectedness of the channels, pairing can be established with the neighbouring channel in reverse: Lung with Liver, Heart with Spleen, etc.

There will be overlaps with the other sets of pairings as can be seen in the following table, such as Large Intestine with Stomach. However, the yin-yang balance is maintained through the coupling of hand and foot channels.

HAND CHANNELS	FOOT CHANNELS
Hand *Taiyin* Lung	Foot *Jueyin* Liver
Hand *Yangming* Large Intestine	Foot *Yangming* Stomach
Hand *Shaoyin* Heart	Foot *Taiyin* Spleen
Hand *Taiyang* Small Intestine	Foot *Taiyang* Urinary Bladder
Hand *Jueyin* Pericardium	Foot *Shaoyin* Kidney
Hand *Shaoyang Sanjiao*	Foot *Shaoyang* Gallbladder
Neighbours (see appendix under P5)	

Table 5

Pairing 6 - P6

The 6th pairing system builds on the same idea of resonance and interconnectedness but does require a little more deduction. It is based on how *qi* and *yinyang* move over what we call the 24 hour period.

The so-called Chinese clock divides the 24 hour day into 12 segments of two hours each. A segment, called *shichen* 時辰 is a double hour.

The *Lingshu* Chapter 18 states that "midnight is the supreme point of Yin and the period following midnight is the decline of Yin" 夜半為陰隴,夜半後而為陰衰, and "Yang develops to its supreme point at the noon [which is the period of Yang within Yang]" 日中而陽隴,為重陽[20].

At midnight, as *yin* declines, *yang* in turn grows. We know from the earlier chapters such as chapter five of the *Suwen*, that the Gallbladder and the Liver corresponds to the phase Wood which is one of movement and growth.

Both the Gallbladder and Liver are *yang* in nature. The ancient Chinese use a system combining two systems called Heavenly Stems Earthly Branches 天干地支 to count time both in terms of years, months, days, and hours.

Heavenly Stems consists in 10 and Earthly Branches in 12, and the combination works out to a sexagenary cycle. Hence, the *shichen* terms *zi* 子, 11pm-1am, can be associated with the Gallbladder, the *shaoyang* which is *yang* pivot, that is, turning from *yin* to *yang*.

It is the time when the Foot Shaoyang Gallbladder *qi* rises, moving the whole body gradually to a *yang* mode, towards dawn.

At the other extreme is noon, the *shichen* is *wu* 午, 11am-1pm, it is "the period of Yang within Yang" and the *Lingshu* chapter 2 states the "Taiyang within Yang is the heart" 陽中之太陽, 心也.[20,21]

The Hand Shaoyin Heart *qi* pivots the *yang* to *yin*, for while "noon is [the period of] supreme point of Yang," when "the sun moves toward the west, Yang begins to decline" 日中而陽隴,日西而陽衰.[20] With these two points in the 24 hour period fixed, the flow of the *qi* through the channels is then mapped onto the *shichen* giving us the following:

CHINESE DOUBLE HOUR SHICHEN 時辰	24 HOUR TIME	CHANNELS AND QI DOMINATING
Zi 子	2300-0100 hrs	Foot *Shaoyang* Gallbladder
Chou 丑	0100-0300 hrs	Foot *Jueyin* Liver
Yin 寅	0300-0500 hrs	Hand *Taiyin* Lung
Mao 卯	0500-0700 hrs	Hand *Yangming* Large Intestine
Chen 辰	0700-0900 hrs	Foot *Yangming* Stomach
Si 巳	0900-1100 hrs	Foot *Taiyin* Spleen
Wu 午	1100-1300 hrs	Hand *Shaoyin* Heart
Wei 未	1300-1500 hrs	Hand *Taiyang* Small Intestine
Shen 申	1500-1700 hrs	Foot *Taiyang* Urinary Bladder
You 酉	1700-1900 hrs	Foot *Shaoyin* Kidney
Xu 戌	1900-2100 hrs	Hand *Jueyin* Pericardium
Hai 亥	2100-2300 hrs	Hand *Shaoyang* Sanjiao

Table 6

The 6th set of channel pairing uses the clock map and matches according to *yin* and *yang*, hours of darkness with hours of brightness, giving us the following:

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CHANNELS	TIME		CHANNELS
	AM	PM	
Foot *Shaoyang* Gallbladder	11pm-1am	11am-1pm	Hand *Shaoyin* Heart
Foot *Jueyin* Liver	1am-3am	1pm-3pm	Hand *Taiyang* Small Intestine
Hand *Taiyin* Lung	3am-5am	3pm-5pm	Foot *Taiyang* Urinary Bladder
Hand *Yangming* Large Intestine	5am-7am	5pm-7pm	Foot *Shaoyin* Kidney
Foot *Yangming* Stomach	7am-9am	7pm-9pm	Hand *Jueyin* Pericardium
Foot *Taiyin* Spleen	9am-11am	9pm-11pm	Hand *Shaoyang Sanjiao*

Table 7

An example of this application is the use of PC6 neiguan 內關 to treat nausea arising from the stomach.[23,24]

Qi-blood pairing

The last channel pairing is based on the amount of qi and blood within the channels as enunciated by the *Lingshu*. These pairs were inferred from passages within the *Lingshu* and subsequently tested clinically.

> The Yangming [Channels are characterised by] more blood and more Qi; the Taiyang [Channels are characterised by] more blood and less Qi; the Shaoyang [Channels are characterised by] more Qi and less blood; the Taiyin [Channels are characterised by] more blood and less Qi;
> the Jueyin [Channels are characterised by] more blood and less Qi; the Shaoyin [Channels are characterised by] more Qi and less blood.[20] Chapter 78
> 陽明多血多氣, 太陽多血少氣, 少陽多氣少血, 太陰多血少氣, 厥陰多血少氣, 少陰多氣少血.[21]

By itself, it remains unclear how the pairing should occur precisely. The clue is in *Lingshu* chapter one which positions the channels in an *yinyang* manner.

> The Shaoyin within Yang is the lung and its Yuan-Primary [Acupoint] is Taiyuan (LU 9) on both sides; the Taiyang within Yang is the heart and its Yuan-Primary [Acupoint]
> is Daling (PC 7) on both sides; the Shaoyang within Yin is the liver and its Yuan-Primary [Acupoint] is Taichong (LR 3) on both sides; the Zhiyin within Yin is the spleen and its Yuan-Primary [Acupoint] is Taibai (SP 3) on both sides; the Taiyin within Yin is the kidney and its Yuan-Primary [Acupoint] is Taixi (KI 3) on both sides.[20]
> 陽中之少陰,肺也,其原出於太淵,太淵二.陽中之太陽,心也,其原出於大陵.大陵二.陰中之少陽.肝也,其原出於太沖,太沖二.陰中之至陰,脾也,其原出於太白,太白二.陰中之太陰,腎也,其原出於太溪,太溪二.[21]

It is suggested that the Lung channel is paired with the kidney within the text itself. The first and last sentences of the section reads:

> 阳中之少阴，肺也 …
> 阴中之太阴，肾也 …
> The shaoyin within yang is the lung …
> The taiyin within yin is the kidney …

The Liver channel is paired with a shaoyang channel in the third sentence:

> 阴中之少阳，肝也 …
> the shaoyang within yin is the liver …

As the Liver is already paired with the Gallbladder in the external-internal relationship, one is left with the *Sanjiao* which, as seen in P4, is also paired with the Liver. The next two pairings require a little interpretation and is a process of elimination.

> 阴中之至阴，脾也 …
> the zhiyin within yin is the spleen …

Zhiyin 至阴is extreme *yin*. In *yinyang* theory, where a movement becomes extreme it begins to turn to the other. Thus, *zhiyin* is when *yin* is turning into *yang* which is also the meaning of *jueyin*. In this context, the Spleen is viewed as functioning as a pivot. The Spleen's phase within the *wuxing* 五行 is earth *tu* 土. The earth contains all the nourishment that life requires. It is also the ground in which matter is transformed, with some being sent deeper into the soil to nurture, for instance, the various substances to nurture plants, and others sent upwards such as evaporated water in order to transform into rain. The Spleen both transforms and transports and has a particularly intimate relationship with Stomach, as established in the *Suwen*. Both are of the earth phase though each works differently. Both are vital to the digestive process.

The Large and Small Intestines are thus grouped with the Spleen and Stomach for the latter reason. As the Spleen is already paired with the Small Intestine in the P3 set and the Stomach with the Large Intestine via the *yangming* channel, the Spleen is now coupled with the Large Intestine and the Stomach with the Small Intestine. The last two channels left are the Gallbladder and the Pericardium.

When the *Qi*-Blood pairings are mapped against the description of the channels given in the *Lingshu* chapter 78, a *yinyang* symmetry is manifest for four of the pairs.

For instance, where one channel has more blood and less *qi*, its partner has less blood and more *qi*, such as the Gallbladder and Pericardium channels (see the following table 8).

The last two pairs, namely the Spleen-Large Intestine and Stomach-Small Intestine channels are weighted in favour of more blood than Qi. Spleen and Small Intestine channels have more blood and less Qi but Stomach and Large Intestine channels are full of both blood and Qi.

The presence of more blood seems logical when one recalls this group is where post-natal nourishment and the sustenance of life operate.

	PAIRS	BLOOD	QI
Pair of Yin	Lung (hand)	+	-
	Kidney (foot)	-	+
	Heart (hand)	-	+
	Urinary Bladder (foot)	+	-
	Liver (foot)	+	-
	Sanjiao (hand)	-	+
	Spleen (foot)	+	-
	Large Intestine (hand)	+	+
Pair of Yang	Stomach (foot)	+	+
	Small Intestine (hand)	+	-
	Pericardium (hand)	+	-
	Gallbladder (foot)	-	+

Table 8 Qi-Blood pairing (see appendix P7)

An example of clinical application for the Qi-blood pairing is the diagnosis of Kidney not Grasping *Qi* (*shen bu na qi*) 腎不納氣. Needling the Foot *Shaoyin* Kidney channel in order to treat both the Hand *Taiyin* Lung channel and the lungs themselves in cases of dyspnea and persistent cough.

Treatment Application, Case Examples & Conclusion

The relationship between the cosmos and the human body established via the concept of *ying* 應 or resonance can be used effectively in clinic.

An arm can be taken in a synecdoche manner to mirror or map the entire body with the hand representing the head, the wrist as the neck, the forearm as the trunk, the elbow crease as the waist and the upper arm as the lower half of the body. In reverse, the deltoid can be taken to be the head and so forth, through to the wrist as the waist. The same approach can be applied to the legs.

Thus, for instance, shoulder ache running along the right Hand *Yangming* Large Intestine channel may be treated by needling the left Foot *Taiyin* Spleen channel at Sp 9 *yin ling quan* 陰陵泉.

The example given of the set P4 using St 43 *xiangu* 陷谷 to treat a constricted chest uses the same mirror image but approaching the foot as representing the entire body, thereby positioning St 43 right at the 'chest' level.

Such a framework built on the idea of resonance ying 應 in the *Suwen* is clearly explicated in the *Lingshu* chapter 9:

> [If] the disease is in the upper [part of the body, the Acupoints located on] the lower [part of the body can be] needled [to treat it]; [if] the disease is in the lower [part of the body, the Acupoints located on] the upper [part of the body can be] needled [to treat it]; [if] the disease is in the head, [the Acupoints located on] the foot [can be] needled [to treat it]; [if] the disease is in the waist, [the Acupoints located on] the popliteal fossa [can be] needled [to treat it].(20)
> 病在上者下取之；病在下者高取之；病在頭者取之足；病在腰者取之膕.(21)

Based on the passage above, one first locates which channel is affected and then uses the paired channel to treat the condition, usually on the opposite side.

The following two case examples demonstrate the use of the pairing, the application of the mirror-map of the body, and the importance of treating *shen* 神.

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Case example 1

Tom (pseudonym), a 34 year old man first visited complaining of a dull ache in his upper back on the medial border of the right scapula. He first experienced it over 10 years ago but it resolved by itself. On presentation, he had a sharp pain some two-three weeks before and noticed the reoccurrence on stretching or flexing his neck. His relationship of seven years ended in 2012. Since then, he had not talked through the matter with anyone.

Pulse, general: Right – thready; Left – wiry

Tongue: body – pale red; coating – dry, a little yellow.

Palpation: Area of complaint was ropey, tight, and the ache was felt on pressure. Left upper back was slightly tight, with nil pain.

Treatment: As the channel affected is the Urinary Bladder, I used its paired channel, following P3 and P6, as a treating channel. I palpated along left Lung channel. Active point around Master Tung point 44.01 *fen jin* 分金. On needling he had an adverse reaction and felt faint. The treatment stopped. Ache a little relieved. Visits were weekly.

2nd visit: No relief post treatment. Acupuncture was not used to treat shoulder. Instead, local treatment applied using cupping resulting in dark red patches.

3rd visit: Still no resolution. A review of the history and case took place. It was decided to return to first principle – treat *shen*. Followed *Qi*-Blood and P4 pairing and using the mirror map, It was needled on the left Ht5, Ht7 and Ht8. Tom said the effect was almost instantaneous. The area of ache and tightness then covering some 3cm by 8cm area was reduced to around 1cm circumference.

4th visit: Tom reported the improvement was sustained and he had more movement. He had also started talking through his relationship breakup which had affected him deeply, with his usual confidant.

That was the first time he had done so since 2012. Same points on the Heart channel was used as the spine of the treatment with a few secondary points for systemic treatment.

Subsequent visits were teaching movements to sustain physical progress, encouraged meditation and talking through emotional states with his confidant.

Case example 2

Jane is an 88 year old woman who came interstate to live in Sydney with her children. She had experienced dizzy spells at age 60 and was treated by an acupuncturist for three months. The dizziness subsequently resolved but restarted a few years ago. When it attacked, the dizziness would last for two-four days unrelentingly, thereby incapacitating Jane. It occurs randomly and at least once a week. Jane is on multiple pharmaceutical drugs for hypertension (BP taken in clinic was 172/70 even when on medication).She has also tinnitus which was finally diagnosed as Meniere's disease by an ENT consultant over the visits to my clinic. At the 1st visit, Jane said she was feeling a little 'woozy,' no nausea.

Pulse, general: Right – large, slippery; Left – large, slippery carrying wiry.

Tongue: pale, very little coating.

Cheeks: ruddy.

Treatment: Right: Sp1, Sp2, Sp3, Sp6, St 43, St 44; Left: Liv1, Liv2, Liv3

The concentration on the lower half of the legs was based on the mirror-map and *Lingshu* chapter 9 quoted above. The channels used were based on the *Lingshu* fullness of *qi* and blood in the channels, focusing more on the manipulation of Blood (see Table 8). No herbs were prescribed due to the various medications Jane was on. Immediately following the treatment, Jane said the 'wooziness' was gone but was a little doubtful if the treatment would work as no needles were inserted in her head. Visits were weekly.

2nd visit: Pulse and tongue presentation were similar. BP was 166/66. When asked, Jane said she had one episode of dizziness lasting 2-3 hours. She was very pleased. Treatment followed an additional approach using Richard Tan's idea of balancing.[1] I needled the following points:

Right: 22.04 *Linggu* 靈骨, 22.05 *Dabai* 大白, Liv2, Liv3
Left: Lu9, Lu10, Ht 8, Sp2, Sp3, St44

Upper-Lower pairing:
Linggu and *Dabai* are Tung points on the Large Intestine channel located on the hand. – P3

Lung paired with Spleen and Stomach channels under P2 and P4 respectively. St44 was used to release chest constraints as was Ht8.

Left-Right pairing:
Large Intestine paired with Lung channels under P1.

[1] Richard Tan's course was first held in Sydney, 2012 which I had attended and from which the idea of balancing the channels came. The balancingmethod was also based on the idea of pairing channels. However, Richard Tan used the bagua to explain the pairing. Acknowledgement is given that the pairing numbers are in line with Tan's.

3rd visit: Jane reported no episode of dizziness at all. In the course of the conversation, she said she had come to "Sydney to die. But now I feel good."

Subsequent visits were based on presentations and maintenance therapy as no dizziness was experienced except when Jane overstrained herself.

Even so, the episodes would last a few hours rather than days. Jane now knows to slow down and 'take it easy.'

Discussion

Mapping out the pairings reveals which ones have stronger resonating relationships and are therefore given priority in the selection of channels to treat. The table in the appendix, for instance, shows that the Liver Channel couples strongly with the San Jiao Channel, while the Stomach Channel resonates with the Pericardium and Large Intestine. Flexibility and versatility are thereby afforded to the clinician precisely because the acupuncture channel structure perceived by the authors of the *Neijing* is organic, complex and dynamic.

In case 1, the channel affected is the Urinary Bladder. Both the Lung and Heart channels show an affinity with it. However, the initial failure by the practitioner to consider the *shen* 神 in Tom's condition resulted in very little resolution. Recall that Tom broke up with his girlfriend of 7 years only 2 year previously and more importantly, had not spoken of it to any one since. So, while the Lung channel resonates strongly with the Urinary Bladder, the Heart channel which has just as strong a relationship (see table in Appendix), should have been chosen first based on the clinical examination, namely, questioning Tom's history. One could say Tom's pain was that of his *shen* 神 which led to a stagnation of *qi* (see the analysis of *shen* 神 in the *Neijing* earlier in this paper).

In case 2, on the other hand, Jane's primary issue was physical on presentation. However, as *shen* 神 is the "undetectable [changes of] Yin and Yang" (3), the manipulation and regulation of *qi* (yang) and blood (yin) results in the unintended but clearly positive improvement of Jane's psycho-emotional state, leading her to confide that she had come to Sydney to die but since the treatment, felt all was well and the initial intention could be replaced by another that is more hopeful.

The channel pairing approach to acupuncture has the strength of being founded in the notion of *qi* and blood circulation precipitating a process of regulation and inner harmonization that allows the body to repair and nourish itself.

It returns channels to the centre of acupuncture practice and encourages the practitioner to first locate the pathology within a channel and then use an indirect subtle approach to address that pathology. It challenges us and asks us to question the wisdom of local and ahshi needling into an already 'sick' channel. It also challenges the point prescription methods that are based on *zang-fu* differential diagnosis that fail to take account of *jing-luo qi* circulation as anything other than a symptom of organ pathology.

The contributions of the various authors of the *Neijing* are reflected in the books' rich philosophy, theory and application of medical concepts and acupuncture, and laid the foundation for the practice of medicine in Chinese civilisation through to the present day.

Understanding their approaches to acupuncture exposes the possibilities and widens the horizon of clinical work. It also emphasises the deep interconnectedness between the physical and the psycho-emotional-spiritual, between the immanent and the transcendent.

The Rich Resonance of Huangdi Neijing and Its Clinical Use
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Appendix

	P1 INTERNAL-EXTERNAL	P2 SAME NAME	P3 FUNCTIONS	P4 MICROCOSM	P5 NEIGHBOUR	P6 CLOCK	P7 QI-BLOOD
LU	LI	SP	UB	ST	LV	UB	KD
LI	LU	ST	LV	SP	ST	KD	SP
ST	SP	LI	PC	LU	LI	PC	SI
SP	ST	LU	SI	LI	HT	SJ	LI
HT	SI	KD	GB	UB	SP	GB	UB
SI	HT	UB	SP	KD	UB	LV	ST
UB	KD	SI	LU	HT	SI	LU	HT
KD	UB	HT	SJ	SI	PC	LI	LU
PC	SJ	LV	ST	GB	KD	ST	GB
SJ	PC	GB	KD	LV	GB	SP	LV
GB	LV	SJ	HT	PC	SJ	HT	PC
LV	GB	PC	LI	SJ	LU	SI	SJ

Case study: Improving sperm parameters with acupuncture and Chinese herbal medicine

By Nicola Macdonald DipTCM, ADVCertChina, MHlthSc(TCM)

ABSTRACT

Traditional Chinese medicine for male infertility was first recorded as a treatment in 610CE in the Chao Yuan-fang's Zhu Bing Yuan Hou Lun.[1] Despite the long history of empirical knowledge, male fertility treatments with acupuncture and Chinese herbal medicine have been poorly researched. Western medicine has little to offer men in the treatment of most male fertility disorders, particularly where substandard sperm is the issue. This case study demonstrates a male who presented with a semen analysis in the low-normal range and improved his sperm parameters by between 34% and 50% following three months of weekly acupuncture and Chinese herbal medicine. The patient and his wife reported their first pregnancy three months after the treatment period.

KEYWORDS male, fertility, sperm parameters, semen analysis, acupuncture, Chinese herbal medicine, spermatogenesis, teratozoospermia.

Introduction

Primary infertility is defined as a pregnancy not achieved after twelve months of unprotected sexual intercourse and is estimated to be prevalent in eight to fifteen percent of couples worldwide.[1] In males, infertility is estimated to be present at a rate of around seven percent[2] and may be a factor in up to fifty percent of infertile couples.[1]

Male infertility includes a variety of disorders including semen irregularities (sperm count, concentration, vitality, motility, morphology, antibody and DNA fragmentation disorders),[2] varicocele, urogenital infections, cryptorchidism and obstruction within the male reproductive tract.[3] The condition can be idiopathic in up to fifty percent of patients.[4]

Spermatogenesis, the process by which spermatozoa are formed, requires almost three months[5] and may be hampered by a variety of factors including: exposure to environmental toxins,[6] overheating the scrotum (>34°C),[7] increasing age,[8] under or over weight, infections, diabetes, smoking cigarettes or cannabis, antidepressant use, intensive exercise, and prolonged cycling.[3]

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Male fertility investigations may include physical examination, semen analysis, anti-sperm antibody test, sperm function tests and reproductive hormone serology (e.g. follicle stimulating hormone, luteinising hormone, prolactin and testosterone).[9]

Currently, the western medicine treatment for male infertility is extremely limited.[10]

Structural and infectious conditions may be treated with surgery (e.g. varicocele, although the benefit to fertility is controversial)[11] or antibiotics (e.g. urogenital infections).[12] In cases of oligospermia (low sperm count), asthenospermia (low motility) and teratozoospermia (poor morphology) there is no standard medical treatment so instead intracytoplasmic sperm injection (ICSI) is employed. In the case of azoospermia (the absence of spermatozoa in the ejaculate) immature sperm can be surgically extracted.

ICSI requires that the female partner has her oocytes extracted for fertilisation.[3] Male infertility treatment is a growing area for traditional Chinese medicine (TCM) research. Since 1997 acupuncture trials have been contributing to the small but growing body of evidence.[13]

The following case study highlights an example of a male patient with low-normal semen analysis results who responded favourably to acupuncture and Chinese herbal medicine (CHM) treatment.

Description of the patient

A 35 year old man was referred by his wife for male fertility enhancement. They had attempted four in-vitro fertilisation cycles (IVF) without a positive pregnancy test. The fertilisation rate was 60 percent.

The couple were diagnosed with unexplained infertility. The wife had already undergone two months of acupuncture and herbal medicine to support her last IVF cycle.

The couple decided to take a three month break from IVF and concentrate on a regime of preconception care including acupuncture, herbal medicine, a healthy diet, no alcohol, reducing stress and increasing their exercise.

The man is average height, slim with a healthy complexion. He does not smoke, use recreational drugs or take any medications. He has no other children.

Presentation, history of presenting condition

The man's sperm analysis showed low-normal results for count, motility and morphology (Table3).

He reported no other symptoms of reproductive disorders including erectile dysfunction, anorgasmia or poor libido. He ejaculated in accordance with their IVF specialist's recommendations, every other day and the volume of seminal fluid was adequate. He did not experience any scrotal pain and there were no problems with urination other than waking to urinate at least once during the night.

He reported his general health as usually very good. Major findings from the consultation were:

- Sleep: Sound and only interrupted by urge to urinate
- Energy: Good energy generally, but tires early in the evening. He works very long hours and shift work
- Digestion: Good appetite, passing regular well-formed stools once daily
- Ear, nose and throat: He suffers from occasional hayfever triggered by pollens and sinusitis made worse by spicy food and dairy products
- Head: Suffers from dull headaches occasionally at the temples when tired (from working long hours).
- Musculoskeletal: Low back ache when working long hours, knee pain from rugby injuries during teens and twenties. Tight neck and shoulders when frustrated at work
- Emotional health: Work can be stressful in managing a large team but he feels he copes well. He and his wife are also frustrated and fearful about the future of their IVF treatment
- Exercise: Gym (cardio and weights one hour) two to three times per week. Incidental exercise walking to the bus most days. He handles stress best when he is exercising
- Tongue: wet with teeth marks with slightly red sides and a small amount of thin yellow coat
- Pulse: The right guan pulse (Liver/Gallbladder) was wiry and the right chi pulse (Kidney Yang) was weak.

Physical examination

A physical examination showed that the patient's lower back was colder than his abdomen. His skin was clammy and he reported that he sweated easily, especially around the groin region which would also become itchy. His IVF specialist had not found any other reproductive abnormality through physical examination.

Investigations

The man attended his first appointment with his last semen analysis that was six months old. The andrology report indicated that his semen was above the lower reference ranges for sperm count, morphology and motility however he wished to improve these results.

Diagnosis

The patient was diagnosed with Liver Qi stagnation, Damp Heat in the Liver and Gallbladder and a mild Kidney Yang deficiency. The signs and symptoms to support these diagnoses are as follows:[14]

- Liver Qi stagnation: frustration, mood is better after exercise, neck and shoulder tension, sighing frequently and wiry pulse in the right guan position.
- Damp heat in the Liver and Gallbladder: dull headaches at temples when frustrated, sweating and itchiness in the groin, and red sides on tongue with thin yellow coating.
- Kidney Yang deficiency: low-normal sperm parameters, low back ache worse when tired and cold to touch, low energy at the end of day, sweating easily, nocturnal urination, history of excessive exercise resulting in knee pain and weak right chi pulse.

The treatment principle for the first treatment focused on reducing the excess patterns: move liver qi, drain damp heat from the Liver and Gallbladder and calm Shen.

* This paper is a modified version of one prepared as an assignment in the Women's Health in Chinese Medicine unit in the Masters of Chinese Medicine at Western Sydney University.

Treatment

The acupuncture treatment is detailed according to the STRICTA Guidelines.[15] Acupuncture points were chosen and needled[16] and described in Table 1.

The patient attended a course of five months of weekly treatment (missing an appointment occasionally).

The acupuncture points were needled bilaterally (except for DU20) with de qi manually obtained on each point. Acupuncture needles were retained for approximately twenty minutes per session.

The type of needles used were Carbo surgical stainless steel acupuncture needles (0.25 x 25mm and 0.25 x 40mm).

The acupuncture was performed in a private clinic in West End (Queensland) by a diploma qualified practitioner who had at the time thirteen years of clinical experience. (See Table 1 for initial points).

Long dan xie gan wan, a CHM formula, (KPC herbs) was prescribed at the initial consultation to resolve the damp heat from the Liver and Gallbladder, at a dosage of 5g taken bi-daily for a period of two weeks in which time the Liver and Gallbladder damp heat signs had resolved however his other signs and symptoms remained the same (Appendix 1).

At this time, his diagnosis was revised to Liver Qi stagnation and Kidney Yang deficiency.

The treatment principles were to disperse Liver Qi and tonify Kidney Yang. A new acupuncture and CHM protocol were developed and delivered over a three month period.

Acupuncture treatments continued on a weekly basis in a similar manner to the initial treatment, with an adjusted point prescription as detailed in (Table 2.).

The man was then prescribed China Med Men's formula (Nan Bao) to invigorate the Kidney, enrich the Kidney Essence, tonify the Qi and calm the Spirit,[17] at a dosage of three capsules taken bi-daily (Appendix 2).

Outcome

After six weeks of treatment his right Guan pulse (Liver and Gallbladder) had less of a wiry quality and the right Chi pulse (Kidney Yang) pulse had more strength. The Liver and Gallbladder damp heat signs had not returned.

His energy levels had improved but his health was stable otherwise. The man repeated the sperm analysis after three months of treatment.

Unfortunately, the semen analysis reports were not homogenous in their reporting style so a comparison could only be made on the common markers of sperm count, motility and morphology.

Each of these parameters showed a marked improvement following the treatment. The comparison of results is shown in Table 3.

The man and his wife undertook another IVF cycle the month after this test was taken. The fertilisation rate was 75 percent and although the fresh embryo transfer was unsuccessful, they reported a positive pregnancy test for a frozen embryo transfer in the next month.

Discussion

TCM considers male infertility to be related to the correct functioning of the Kidney, Liver and Spleen.[3]

The Kidney is known as the 'root of life' – it stores the Jing (essence), governs birth, development and reproduction, controls the lower orifices and is the gate to Ming Men (warming the lower Jiao, Jing and harmonising sexual function).

The Liver regulates the movement and volume of blood, circulates the Qi to prevent obstructions and controls the sinews (including the penis).

The Spleen is the root of the acquired Qi and through its transforming and transporting function contributes to the development of blood Yin and Yang which are necessary for reproductive processes to occur.[14]

Sperm is probably most closely connected with the Kidney Jing. It is the Yang of the Kidney that gives sperm their motility, warms the seminal fluid to prevent it being thin and watery, and provides the spark for libido and orgasm.

The Yin controls substance and is represented by quantity of seminal fluid, sperm count and morphology, and control over ejaculation.

Jing essence manifests in poor sexual development or premature ageing. Liver blood deficiency can lead to a decline in Jing (fertility).

Damp heat can cause obstructions within the genital region in the form of infections and this can reduce male fertility[7] and sexual function.[3,14]

Men over the age of 35 have a decline in their sperm parameters.[8] Traditional Chinese medicine equates this to a Kidney deficiency. Kidney depletion are situations that wear out the body - that is chronic illness, excessive ejaculation and exercise, or overwork.

Dysfunction is created in the Liver by the emotions of anger, frustration and repressed emotion, a greasy and spicy diet, excessive alcohol intake (creating too much heat) and a sedentary lifestyle.

The Spleen is harmed through difficult to digest foods contributing to a lack of nutrients to nourish the Jing and blood, a predominance for worrying or overthinking, and exposure to damp environments.[14]

Studies suggest that acupuncture given twice per week for between five and ten weeks can significantly improve sperm count[18], concentration[19], morphology[18,20] and motility[13, 21] specifically rapid motility (22).

Case study: Improving sperm parameters with acupuncture and Chinese herbal medicine
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CHM research for the treatment of sperm disorders is extremely limited and poor quality. Additionally, nutritional medicine may be used as an adjunct to TCM treatment. Vitamin C, E, folate and zinc have been shown to reduce DNA damage by up to twenty percent in older men (>44 years).[8]

Conclusion

The body of evidence supporting acupuncture and CHM for improving sperm parameters is small but growing.

Unfortunately, many of the studies are small and the research designs are flawed as is often the case in acupuncture studies, the TCM diagnosis is lacking.

One study[7] made two general diagnoses: deficiency of the Kidneys and damp-heat syndrome, and found that patients with higher scrotal temperatures (due to inflammation which may be considered damp heat in TCM) who had a course of acupuncture had normal scrotal temperatures at the conclusion of treatment.

In conjunction with the drop in temperature, almost all of those patients demonstrated an increased sperm count.

This suggests that correctly diagnosing based on TCM and western medical investigations may lead to better treatment outcomes.

Male fertility, in particular sperm quality, is greatly affected by lifestyle factors.

Overheating, excessive exercise, weight disorders, excessive alcohol intake, obstruction of the genital region and increased age are aetiological factors in both Western and Chinese medicine.

These factors must be addressed in consultations with male infertility patients, particularly during the three month spermatogenesis period.

This case demonstrates that treatment is still beneficial if a semen analysis is low-normal.

Through acupuncture treatment and CHM support, the man improved his sperm count, motility and morphology considerably, contributing to a higher ovum fertilisation rate and his wife's first pregnancy.

Western pathology provides an accurate tool for measuring the extent of sperm disorders and TCM provides treatment to significantly improve sperm parameters where there is currently no comparable Western medical option.

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Table 1.
Initial Acupuncture: Treatment principles, acupuncture point prescription and techniques (Deadman et al., 2006)

TREATMENT PRINCIPLE	POINT SELECTION	DEPTH AND TECHNIQUE
Spread Liver Qi Regulate lower jiao	Liver 3 (LV3)	0.5 cun, towards KD1
Spread Liver Qi Clear damp heat from Liver & Gallbladder	Gallbladder 34 (GB34)	1 cun, perpendicular
Harmonise the Liver Tonify the Kidney Drain damp Benefit the genitals	Spleen 6 (SP6)	1 cun, perpendicular
Spread Liver Qi Clear head and benefit eyes	Gallbladder 41 (GB41)	0.5 cun, perpendicular
Spread Liver Qi Clear damp heat from lower jiao Benefits the genitals Calm Shen	Liver 5 (LIV5)	1 cun, perpendicular
Resolve damp Benefit the lower jiao	Spleen 9 (SP9)	1 cun, perpendicular
Calm the shen	Governor vessel 20 (DU20)	0.5 cun, transverse

Table 2.
Secondary Acupuncture: Treatment principles, acupuncture point prescription and techniques (Deadman et al., 2006)

TREATMENT PRINCIPLE	POINT SELECTION	DEPTH AND TECHNIQUE
Spread Liver Qi Regulate lower jiao	Liver 3 (LV3)	0.5 cun, towards KD1
Spread Liver Qi	Gallbladder 34 (GB34)	1 cun, perpendicular
Spread Liver Qi Benefits the genitals Calm Shen	Liver 5 (LIV5)	1 cun, perpendicular
Harmonise the Liver Tonify the Kidney Benefit the genitals	Spleen 6 (SP6)	1 cun, perpendicular
Tonifies Kidney Yang	Kidney 3 (KD3)	0.5 cun, perpendicular
Benefits the lower Jiao	Kidney 11 (KD11)	0.5 cun, perpendicular
Fortifies original Qi Benefits Essence Regulates the lower Jiao	Conception vessel 4 (REN4) Unilateral	0.5 cun, oblique insertion with de qi sensation to the penis
Calm the shen	Governor vessel 20 (DU20)	0.5 cun, transverse

Table 3.
A comparison of the mans' initial and post-treatment sperm analyses

ANDROLOGY	SPERM ANALYSIS 1	SPERM ANALYSIS 2	CHANGE (%)
Count	27	63	+36 (57.1)
Motility	50	76	+26 (34.2)
Morphology	9	14	+5 (35.7)

Appendix 1:
KPC Herbs Long dan xie gan wan

DOSAGE: 5G GRANULES, TWICE/DAY TCM ACTIONS: RESOLVE LIVER/GALL BLADDER DAMP HEAT	
Ingredients:	
Sheng di huang 9g	Che qian zi 9g
Long dan cao 6g	Chai hu 6g
Ze xie 12g	Shan zhi zi 9g
Huang qin 9g	Dang gui 3g
Chuan mu tong 9g	Gan cao 6g

Appendix 2:
China Med Men's Formula (nan bao)

DOSAGE: 3 CAPSULES 2 TIMES/DAY TCM ACTIONS: INVIGORATES THE KIDNEY, ENRICHES THE KIDNEY ESSENCE, TONIFIES THE QI AND CALMS THE SPIRIT	
Ingredients:	
Huang qi 278.46mg	Shu di 278.46mg
Yin yang huo 222.66m	Ba ji tian 222.26mg
Suo yang 222.26m	Xiang fu 167.04mg
Shi chang pu 111.42mg	Yuan zhi 92.7mg
Wu wei zi 92.7mg	Ren shen 55.62mg
Rou gui 55.62 mg	