

Introduction

One way of characterising chronic pain is 'pain that endures beyond a reasonable period for tissue healing to occur' (1). Although there is no definitive timeframe, it is frequently arbitrarily categorised as persisting for a duration exceeding 12 weeks, with shorter durations categorised as acute or sub-acute (1). Regardless of duration, chronic pain is a life-altering condition that exacts a toll on patients, encompassing financial, social, and psychological effects (2). Throughout my medical education, I've had the privilege of witnessing the remarkable impact of Traditional Chinese Medicine (TCM) in the management of chronic pain. My interest was piqued in third year when I undertook a two-week course on the basics of TCM; we studied the principles, theory, and many different forms such as acupuncture, herbal medicine and massage therapy. Following this my interest remained, and I chose to undertake my elective in rural India and Nepal, where resources are scarce and alternative forms of medicine (such as TCM) are routinely practiced. One example is I spent time with an acupuncturist and witnessed first-hand the transformative relief it provided to farmers suffering from chronic pain due to the intensity of their work.

These experiences inspired me to write this essay, and as such, I want to explore how despite the advancements of Western medicine when treating chronic pain, there are unfortunately weaknesses, for example side effects including tolerance and addiction, underscoring the need for a more holistic approach (2). TCM, in contrast to conventional pharmacological approaches, seeks to address the root imbalances contributing to the pain (2). TCM practitioners embrace a holistic approach considering not only the physical aspect but also factors such as lifestyle, emotional wellbeing, and external influences (3). The Western medical community's increasing recognition of TCM's efficacy is evident through the inclusion of acupuncture in the National Institute for Health and Care Excellence (NICE) guidelines for chronic pain management (4,5).

Furthermore, this essay endeavours to explore the potential roles of herbal medicines, dietary therapy, and acupuncture in conjunction with Western medicine, noting the key difference in practice between the two; Western evidence-based medicine alongside largely anecdotal TCM. It aims to assess whether these

components of TCM have promise in contributing to a more comprehensive and patient-centred approach to chronic pain management. In summary, I aim to examine the possibilities of incorporating TCM, with its holistic ethos, into Western pain treatments. Such integration could ultimately offer patients a broader and potentially more effective approach to their pain management.

Current management of chronic pain

Pain is an inherent part of the human experience, and with chronicity, extends its reach into the lives of patients with its financial, social, and psychological burdens (1). A meta-analysis of chronic pain prevalence found approximately 28 million adults are affected by the condition in the UK. (1). Moreover, chronic pain has emerged as one of the leading causes of disability worldwide (6), and as our population ages and develops more co-morbidities, the burden of chronic pain continues to surge (7).

To address this growing concern, NICE endeavours to guide clinicians in reduce the burden of chronic pain (3). Their recommendations advocate for a multifaceted approach, encompassing both non-pharmacological interventions such as psychological therapy and physiotherapy, as well as pharmacological treatments, ranging from tricyclic antidepressants (TCAs) and selective serotonin reuptake inhibitors (SSRIs) to opioids and analgesics (3). However, even with the continued advancements in Western medicine, marked challenges remain, including the development of tolerance, dependence, and side effects to these medications (3). Whilst this essay acknowledges the continued impressive progress made in Western medicine it also recognises its limitations.

Principles of TCM

TCM is a holistic system of healthcare that has evolved over thousands of years and is deeply rooted in the principles of balances and harmony (3). It considers the body, mind, and spirit as interconnected aspects of an individual's health (3).

TCM offers a diverse range of healing practices designed to promote harmony within the body and its surroundings (8). TCM's philosophical core rests on the balance

between Yin and Yang, two opposing yet independent forces (9). Within the body health is synonymous with the coexistence of Yin (the passive, cool and nurturing aspect) and Yang (the active, warm, and transformative aspect) (8). According to TCM philosophy, functional activities (such as movement, learning) of the body are classified as Yang, while the material basis of vital functions (blood and bodily tissue) belongs to Yin (8). TCM states that the interaction between Yin and Yang generates Qi (8), and disruptions in the equilibrium between Yin and Yang can result in a disruption of Qi (8).

Qi is a fundamental concept in TCM, representing vital energy or life force that flows throughout the body and it is considered essential to life itself (9). When Qi is hindered or disrupted in its natural flow, it can manifest as pain or illness, both mentally and physically (9). These disruptions can be triggered by a variety of factors, including emotional stress, physical trauma, or imbalances within the body (8).

TCM practitioners employ an array of diagnostic techniques to gain an insight into an individual's overall health. These techniques include pulse examination, tongue analysis and, most importantly, patient history (3). This assessment allows the formulation of personalised treatment strategies that target specific imbalances of Qi, Yin and Yang (3). Primary healing practices to achieve this include acupuncture, cupping, meditation, Chinese herbs and dietary therapy, as well as practices such as 'Tiuna', 'Qigong' and 'Taijiquan' more commonly known as Tai Chi (8). Now we understand the philosophy behind TCM, I will discuss two promising treatments for chronic pain that interest me the most.

Herbal Medicine and diet

Herbal Medicine is a cornerstone of treatment for TCM, utilising many natural substances such as plants, minerals, and animal products, to restore balance and promote healing from within the body (8). These herbal treatments aim not only to alleviate pain symptoms (or symptoms of other diseases) but also to address the underlying cause of ailments (8). In TCM, diet therapy is pivotal, viewing food as both sustenance and potent medicine. Practitioners customise diets based on

individual conditions, guided by the ancient theory of hot and cold from Shennong Bencao Jing dating back to 200 AD (10). This theory suggests that those with cold syndromes should consume foods with hot properties, and vice versa (10).

TCM places a strong emphasis on personalised treatment, recognising that every patient is unique, and each formula is carefully selected and tailored to suit an individual's needs. It seeks to restore the balance of Qi and address specific imbalances within the body (8). For instance, ginger, used in TCM for 2500 years, has been celebrated for its diverse therapeutic applications (11). It has been used to combat muscle pain, reducing swelling, ease arthritis symptoms and relieve headaches. Its historic and traditional use has led to research showing it inhibits arachidonic acid metabolism (arachidonic acid-derived prostaglandins contribute to inflammation as intercellular pro-inflammatory mediators, and they also promote the excitability of the peripheral somatosensory system, contributing to pain exacerbation (11)). One paper, in 2010, demonstrated that daily consumption of ginger effectively relieved pain in patients suffering from osteoarthritis (11). Subsequent studies (12,13,14) have corroborated these findings, further showing that TCM and its treatments hold promise.

Turmeric (with its active component curcumin) is another traditional medicine in TCM and serves as a potent analgesic agent. Curcumin possesses the ability to regulate inflammatory cytokines (15). In a 2018 study of 201 participants, the administration of turmeric over a 12-week period resulted in a significant reduction in pain-related symptoms associated with osteoarthritis when compared to a placebo group (15). Additionally, a systemic review of preclinical and clinical studies has highlighted the potential for turmeric to serve as an effective sole analgesic or as part of combination strategies involving opioids, non-steroidal anti-inflammatories (NSAIDs) or paracetamol (16). This underscores the versatility of turmeric in pain management.

Finally, capsaicin (derived from chili peppers) represents a natural remedy with a unique mechanism of action (17). Its topical application has long been recognised as a treatment option for various pain conditions as intense or repetitive exposure to capsaicin leads to reversible and selective loss of nociceptive nerve endings (17). A randomised controlled trial comparing topical diclofenac with capsaicin

supplementation demonstrated superior pain relief when capsaicin was added to the treatment regime as opposed to diclofenac alone (17). Notably capsaicin has proven to be well-tolerated in combination therapy with no documented drug interactions (17).

However, as patients increasingly combine medications and herbal supplements, concerns regarding potential interactions between the two have arisen (18). Herbal medicines and their sellers being largely unregulated may present further safety issues (19). Some herbs used in TCM have been found to interact with medications, either duplicating their effects or rendering them ineffective (18). Ye Lian Qiao (St John's Wort) is used as a supplement for depression and is one of the most taken herbal supplements in the United States of America. It is known to induce liver enzymes, potentially reducing the therapeutic efficacy of certain medications as well causing unsafe and life-threatening conditions with others by inhibiting different enzymes (such as serotonin syndrome when taken with SSRIs (18)). Understanding the compatibility of herbal remedies and medications is crucial for patient safety and the development of safer treatment protocols. However, dietary therapies remain significantly understudied, primarily because conducting high quality research, such as double-blind randomised controlled trials, is challenging and expensive. Additionally, the inability to patent and profit from natural substances such as 'ginger' diminishes the incentive for pharmaceutical companies to invest in extensive studies (11). Consequently, the scepticism lingers around TCM due its perceived lack of empirical evidence in comparison to pharmacological medications.

It is important to note that despite potential risks associated with herbal medicines, a 2004 BMA report highlights that the risks associated with prescribed medications can be substantially higher, with adverse drug reactions resulting in 250,000 UK hospital admissions per year (20). The first line recommended pharmacological management for chronic pain in adults includes antidepressants, such as SSRIs (21). These drugs have several side effects including gastrointestinal bleeding, anxiety, and electrolyte imbalances (21). Another medication utilised is amitriptyline, a TCA (21). This drug has common side effects including drowsiness and QT prolongation, as well as the overdose risk associated with a high mortality (21).

Diet therapy in TCM and synergy with Western medicine

The TCM concept of individualised dietary therapy aligns well with the principles of Western medicine. Research in Western medicine has revealed improper diet can contribute to various diseases, including cancer. A study from 2019 reported that dietary risk factors were responsible for 11 million deaths in 2017 surpassing other risk factors like tobacco use (22). Recognising the role of diet in health underscores the importance of dietary choices in both TCM and Western medicine (22).

The global significance of herbal medicine

The World Health Organisation (WHO) acknowledges that herbal medicines form the primary basis of healthcare for over four billion people worldwide (19). Furthermore, an estimated 85% of traditional medicine practices globally involve plant extracts, which have laid the foundation for modern medicine (23), as many modern drugs have their origins in traditional herbal use. Between 35,000 and 70,000 plant species have been screened for medical compounds and over 200 modern drugs are derived from plants (23). Familiar herbs such as turmeric, ginger and St John's Wort all trace their roots to TCM and are increasingly utilised in the West for their anti-inflammatory, antidepressant and anti-emetic properties (24).

Ultimately a balanced integration of TCM practices and Western medicine may offer comprehensive and effective solutions to address the complex health needs of patients with chronic pain (24).

Acupuncture

A growing number of individuals are exploring alternative therapies to complement or even supplant conventional treatments. One such practice gaining popularity in the West is acupuncture, which traces its origins back to 200 BC, as documented in the medical text 'The Yellow Emperors Classic of Internal Medicine' (25).

At the heart of acupuncture lies the concept of stimulating the body's innate healing mechanism, restoring the balance of Qi and in the process, promoting healing and

pain relief (25). It involves the strategic insertion of fine, sterile needles into specific acupoints (figure 1). The acupuncture points are mapped to 14 main meridian channels, through which Qi flow (figure 2). One meridian channel relates to 12 inner organs and each acupuncture point can treat multiple disorders and pain symptoms (figure 3). These needles can harmonise the Qi, ultimately bringing a state of wellbeing and the alleviation of pain (26).

The methods of acupuncture are diverse depending on the technique employed, whether it be traditional needle insertion, dry needling, heat acupuncture, electroacupuncture or laser acupuncture (26). Research has helped understanding on the underlying mechanisms of acupuncture; it is believed that acupunctures' effectiveness may be attributed to the release of endorphins, natural pain-relieving chemicals in the body, which reduce pain perception and promote a sense of overall well-being (27). Moreover, acupuncture may influence the release of neurotransmitters such as serotonin and norepinephrine, helping to regulate mood and pain perception (27). Additionally, it has shown promise in reducing inflammation and modulating the autonomic nervous system, shifting the body toward the parasympathetic system, responsible for relaxation and restoration (28).

Acupunctures integration into Western medicine

Acupuncture has gained recognition in Western Medicine for its efficacy in alleviating various types of pain, including chronic pain, postoperative pain, headaches, and neuropathic pain (25,27). Notably, acupuncture has shown to be beneficial in conditions such as osteoarthritis, fibromyalgia, and chronic lower back pain (25,27,29). Western medicine has started to recognise acupuncture's role in pain management as evidenced by the revised guidelines issued by NICE in April 2021, which now includes acupuncture as a recommended treatment option alongside exercise programmes, psychological therapies and pharmacological therapy (3).

Despite its ancient origins, acupunctures effectiveness is supported by academic studies. A 2018 meta-analysis encompassing 20,827 patients across 39 trials found acupuncture to be superior to placebo techniques in managing various painful conditions, including back pain, osteoarthritis, neck pain or headaches (27).

Importantly, the effects of acupuncture were observed to persist over time and the benefits could not be attributed to placebo effects (27). However, the quality of evidence regarding real acupuncture versus sham acupuncture remains a subject of debate, raising questions about the placebo effect (30).

Fibromyalgia, a challenging condition characterised by widespread pain and other debilitating symptoms, has seen mixed results from acupuncture (31). Whilst some studies suggest success; a 2021 meta-analysis noted improvements in symptom relief and quality of life (31). Nevertheless, multiple studies failed to establish acupuncture's superiority over sham treatments indicating that there remains a mixed perspective regarding the effectiveness of acupuncture interventions (32).

It's important to emphasise that acupuncture is considered generally safe, with regulated needles required to be thin and sterile. Minor side effects including nausea, fainting, bruising or temporary worsening of pain have been reported (33). Major or rare side effects may include such as lung puncture, infection transmission or bleeding (33). A study of 34,400 reported acupuncture treatments revealed a rate of 0-1.1 major adverse effects per 10,000 treatments (33).

In conclusion, acupuncture, has garnered recognition and acceptance in Western Medicine for its benefits in pain management. While further research is needed to establish its efficacy, studies so far demonstrate its positive effects as an adjunct to exercise, physical therapy or drug treatments (25,26,27). It is essential to acknowledge acupuncture's effectiveness may be intertwined with the patients' beliefs and willingness to engage with treatment process (27). An open and patient centred approach to healthcare may enhance the benefits of acupuncture, which, when administered safely offers a promising avenue for pain relief.

Conclusion

I find it fascinating how TCM originates from a time without the diagnostic equipment or pharmacological advancements we have now, yet certain aspects, such as acupuncture, are now incorporated into our treatment guidelines in the practice of evidence-based medicine (4).

The staggering volume of studies on acupuncture and Chinese herbal medicine (over 20,000 and 30,000 respectively) published in peer reviewed journals worldwide, as documented on PubMed, underscores the growing interest and recognition of TCM's potential in Western medicine and with a large percentage of that aimed at chronic pain (34). Alongside this, herbal medicine holds promise for further exploration. Its potential lies in its ability to alleviate pain and to do this without negative side effects often associated with conventional pharmacological approaches, such as dependence and withdrawal (20,21). Moreover, TCM offers a holistic approach that extends beyond symptom management. It allows individuals to strengthen their bodies through diet choices, exercises, and lifestyle modifications: a prophylactic approach to disease prevention that ultimately mitigates the onset of pain (34).

I do recognise that there are several limitations to the implementation of this: the health service in the UK is understaffed and under-resourced, and a holistic approach would mean longer consultations, amongst many other things (35). In addition, there is less incentive in the current academic set-up for pharmaceutical companies to run trials on herbal medicines, making it much harder for them to be accepted into an evidence-base medicine community (11). However, In pursuit of chronic pain management, the integration of TCM practices into Western medicine holds immense potential. By embracing this approach, we can provide patients with a broader spectrum of treatment options that not only alleviate pain but also enhance their overall well-being.

Appendix

Figure 1: Acupuncture chart with a series of points.



Figure 2: The acupuncture points are mapped into 14 meridian channels through which Qi flows. Meridian channels are like a network which can be compared to the circulatory system in Western Medicine. Each meridian has a specific number and acupuncture points meaning. Those include:

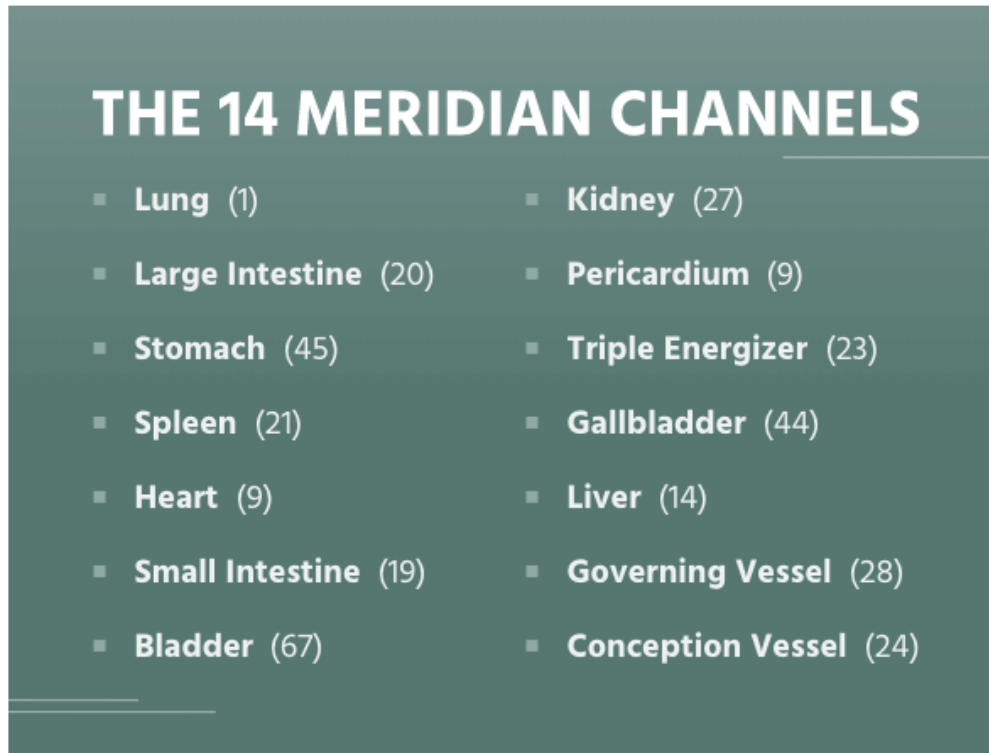


Figure 3: Figure 3 is a table demonstrating commonly used acupuncture points and what they help to treat. For example, Stomach Channel ST36, located on the front of the leg and below the knee, this point treats digestive disorders, immune deficiency, fatigue and other illnesses.

Traditional Chinese medicine and its Role in Chronic Pain Management

Acupuncture Point	Treatment For
Stomach Channel: ST36	 DIGESTIVE DISORDERS  IMMUNE DEFICIENCY  FATIGUE/ EXHAUSTION  EMOTIONAL ISSUES
Spleen Channel: SP6	 IRREGULAR MENSTRUATION  DIGESTIVE DISORDERS  IMMUNE DISORDERS
Liver Channel: LV3	 HEADACHES  EMOTIONAL ISSUES  IRREGULAR MENSTRUATION  HIGH BLOOD PRESSURE
Governing Vessel: GV20	 VERTIGO  EAR/NASAL DISORDERS  MENTAL DISORDERS
Conception Vessel: CV12	 DIGESTIVE DISORDERS  INTESTINAL ISSUES
Conception Vessel: CV6	 FATIGUE/ EXHAUSTION  WEAK SPLEEN QI  LOW ABDOMEN/ ORGAN ENERGY
Large Intestine Channel: LI4	 IMMUNE DISORDERS  FACE PAIN
Kidney Channel: KI3	 ASTHMA  INSOMNIA  SORE THROAT  LOWER BACK PAIN
BL13	 ASTHMA  BRONCHITIS  NASAL CONGESTION  SORE THROAT
BL14	 PALPITATIONS  STRESS/ ANXIETY  DEPRESSION  PANIC ATTACKS
BL15	 CIRCULATORY PROBLEMS  PALPITATIONS  STRESS/ ANXIETY  POOR MEMORY  INSOMNIA/ NIGHT SWEATS
BL18	 HEPATITIS/ CIRRHOSIS  JAUNDICE  STRESS  DEPRESSION  ANGER/ IRRITABILITY

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