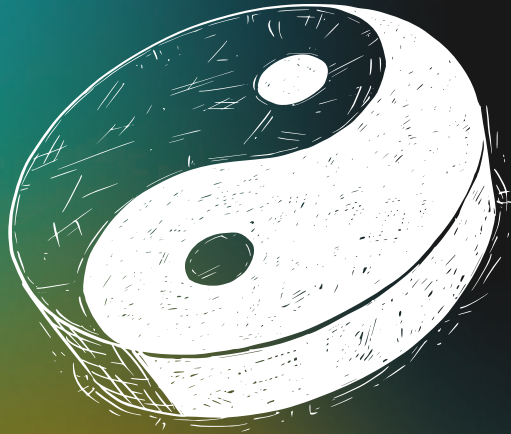


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Acupuncture treatment in supracondylar fracture of the left humerus

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Abstract

The humerus is a long bone in the upper limb that forms the shoulder joint above and the elbow joint below, where it articulates with projections of the ulna and the radius. According to TCM, fractures of any kind can be treated with acupuncture. Acupuncture treatments can be started after all acute care steps have been completed, such as x-rays, surgery, medication for pain management, etc. The key treatment principles for fractures are to relieve swelling, move or activate blood, eliminate pain, promote the regeneration of bone and soft tissues, prevent recurring weakness in that area, and enable a faster return to normal activities. This article presents a case of a 19-year-old boy with a left humerus fracture he acquired while skiing three years ago. He came to our clinic one and a half year after his injury because he couldn't pick up his thumb, and the power of movement in his left hand was reduced. Over a period of one year, he underwent nine acupuncture treatments. Before the treatments, the patient, on the doctor's recommendation, did physical therapy and exercises. After acupuncture treatments, he began to feel better, with more strength in his hand, better sensation, and improved mobility in his thumb. Acupuncture, as a part of TCM, provided significant improvements in the speed and quality of healing in cases of humeral fractures.

Key words: Acupuncture, TCM, fracture, humerus, bone

Introduction

The humerus is a long bone in the upper limb or forelimb of land vertebrates that forms the shoulder joint above and the elbow joint below, where it articulates with projections of the ulna and the radius. Fractures are the most common injury to the humerus and often occur due to a direct blow to the bone. The bones in the arms or hands are more likely to be broken because these parts of the body are commonly used.

Humerus fractures are classified by their location and they can be divided to proximal-break that occurs at the end of the humerus closet to the shoulder, mid-shaft or middle-break that occurs in the shaft of the humerus, distal - a break that happens at the end of the humerus closest to the elbow. [1]

Distal humerus fractures include the supracondylar fractures, single condyle fractures, bi-column fractures and coronal shear fractures. Treatment options include open reduction and internal fixation, closed reduction and percutaneous pinning, and intramedullary nailing or bracing. During injury, open reduction and internal fixation or intramedullary nailing may occur radial nerve palsy. Distal humerus fractures have less positive outcomes. [2]

The clinical appearance of the patients with distal humerus fracture can be summarized as a painful swollen elbow after an injury, also skin lesions can occur posteriorly, where bone is located right under the skin. [3]

According to Traditional Chinese Medicine (TCM) theory, the treatment for a bone fracture includes three periods of treating. When a bone fracture occurs, there is swelling of the tissue around the fracture and pain, which accords with the “blood stasis” and “qi stagnation” pattern. The aims of TCM are to quicken the blood, transform stasis, and promote movement of qi to relieve pain and reduce swelling. After this period passes, there is a middle period in which the site of the fracture is still weak and tender because

the bone and sinews have not yet connected. In the middle period, the aims of TCM principles are to join the bone, soothe the sinews, and harmonize the construction of new sinews and bone. The last or late period is marked by the fracture initially healing but not yet solid. The muscles near the fracture site are atrophied due to the immobilization of the extremity. The strength and function in the fracture site have not yet been recovered, which accords with the “deficiency in both qi and blood” and “liver-kidney depletion” pattern. The aim of TCM is to nourish the blood, supply qi, enrich the kidney and liver, and strengthen the bone and sinew to recover normal function in the affected area in the late period. [4]

Case report

The presented case in this research is a 19-year-old boy who suffered from a supracondylar fracture of the left humerus while skiing three years ago. He came to our clinic one and a half year after the injury because he was unable to pick up his thumb and had reduced mobility power in his left hand. His EMG findings support a chronic, partial sensorimotor lesion of n.ulnaris | n.radialis sin. Despite undergoing intensive interventions, physical therapies, and exercises, he was still unable to lift his thumb up and had reduced mobility power in his left hand. Over the course of one year, he received nine acupuncture treatments. The therapies were not administered more often because the patient lives in another country. After the acupuncture treatments, he began to feel better, with increased strength in the hand, improved sensation, and greater mobility in the thumb.

The acupuncture treatments were done at an acupuncture and TCM clinic in Skopje, North Macedonia, by a doctor a specialist in acupuncture. The treatments lasted between 30-45 minutes and were conducted indoors at room temperature using fine sterile disposable needles sized 0.25x25mm. The acupuncture points used in the treatments are: GB20 (Fengchi), LU2 (Yunmen), LI 15 (Jianyu), LI14 (Binao), LI11

(Quchi), PC5 (Jianshi), SI9 (Jianzhen), LI4 (Hegu), PC7 (Daling), HT8 (Shaofu), PC8 (Laogong) and SI3 (Houxi).

Acupuncture therapy, with a history spanning over 2000 years, is considered one of the most valuable contributions to the field of traditional Chinese medicine. Its therapeutic effects are characterized by the insertion of fine, solid metallic needles into or through the skin at specific areas, which activates the tendons and vessels, promotes bone growth, and enhances the healing process.

In TCM, internal disharmony among bodily functions and between the body and nature can lead to blockages of the body's vital energy, known as qi, which flows through 12 primary and 8 secondary meridians. According to the TCM classic "Nei Jing," the kidney system comprises the kidney, bone, marrow, and brain. In this holistic theory, the kidney is believed to control bones in the body. Unlike the modern medical concept of kidneys, the TCM idea of kidneys is more like a method of characterizing a group of interconnected components than a physiological organ.

Bone regeneration is a sophisticated biochemical process that begins with localized hemorrhage and inflammation, followed by the production of cartilage, soft extracellular matrix tissue, and new bone through the complex actions of mesenchymal progenitor cells. TCM in healing musculoskeletal disorders focuses the attention on the total influence of the patient's body on the bone lesions, rather than just local therapy as in Western treatment. Therefore, TCM uses both interior therapies, such as herbal medication, and external therapies, such as acupuncture, food therapy, exercise (qigong) therapy, and massage (tui na). TCM is a discipline of conventional treatment based on more than 2,500 years of Chinese healthcare profession. [5] [6] [7]

Conclusion

Acupuncture, as a component of TCM, is a highly effective treatment for humerus fractures, providing positive outcomes and successfully improving health.

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Conflict of interest

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Acupuncture treatment in female patient diagnosed with hypothyroidism after COVID-19 infection

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Abstract

After the Covid19 pandemic subsided, the consequences of this virus began to come to light. Namely, there is an increase in thyroid diseases. A lot of studies published in the last three years announced abnormal thyroid function related to acute SARS infection and thyroid diseases have already been revealed as a consequence of the administration of vaccines against it. In this report is presented a case of 60 year old woman diagnosed with hypothyroidism after being infected with SARS-CoV-2 in 2021. The patient has done 38 acupuncture treatments from January 2021 till April 2022. The condition was slowly improving. The TSH levels decreased from 58.75 to 6.55 mIU/mL (0.45-5.33 mIU/mL), fT4 normalized from 0.46 to 10.9 pmol/L (7.88-19.40 pmol/L). Anti TPO levels decreased from 926 to 139 IU/mL (<8 IU/mL). Taking into account that this is an adult patient in menopause and diagnosed with depression and anxiety, conditions that further complicate the possibility of faster treatment, the treatments are slow and longer lasting but with gradual excellent results. The results so far are satisfactory and the patient will continue with the treatments until the condition is completely normalized. Acupuncture has a huge effect and a positive influence on the function of the thyroid gland despite long-term treatments that require a lot of patience on the part of both the doctor and the patient. With regular treatments good results are guaranteed

Key words - hypothyroidism, acupuncture, traditional chinese medicine, endocrinology

Introduction

The thyroid gland is one of the most important endocrine glands in the human body, and its role is in regulating metabolism, but the symptoms that indicate problems with the thyroid gland are unclear, so doctors warn detailed analyzes to be done at least once a year. COVID-19 despite for being known as respiratory disease, other organs and systems are being affected too, including the thyroid gland. After the COVID-19 pandemic subsided, the consequences of this virus began to come to light. Namely, there is an increase in thyroid diseases that are difficult to self-diagnose, because they can be confused with other health problems. The latest research shows that it is assumed that every fifth woman will encounter a thyroid disorder during her life, and the number of affected men is also increasing, but the younger population is the most affected. The earliest symptoms that indicate a thyroid hormone disorder are fatigue, sudden weight loss or gain, slow or fast pulse, sensitivity to heat or cold, anxiety, depression, and hair loss. [1] [2]

The thyroid gland, pituitary and hypothalamus, which regulate the function of the endocrine glands, produce the main protein (angiotensin-converting enzyme 2 - ACE2), which function is to be the receptor that SARS-CoV-2 attaches to enter host cells. In addition, every changes in the metabolism and the body homeostasis make the thyroid gland extremely sensitive. The highest level of ACE2 is expressed by the testicles, then the thyroid gland and the lowest level is expressed by the hypothalamus. Therefore the pituitary–thyroid axis should be considered as a target of SARS-CoV-2 attack. A lot of studies published in the last three years announced abnormal thyroid function related to acute SARS infection and thyroid diseases have already been revealed as a consequence of the administration of vaccines against it. Abnormal function of the thyroid gland may appear during or in the convalescence post-COVID condition phase. [2] [3]

Some researchers explained that COVID-19 is able to modify the thyroid function on a variety of different levels. The thyroid gland can be affected directly via cytopathological effects of the corona virus or indirectly through coagulation mechanisms, cytokines or complement systems. [3] [4]

Acupuncture treatment as part of the Traditional Chinese Medicine (TCM) can help in regulating the Th1/Th2 cytokines imbalance and helps suppressing the autoimmune response. The treatment can reduce the symptoms of hypothyroidism, regulate the thyroid hormones, correct the immune dysfunction and improve the relevant biomarkers of the disease. [5]

Case report

In this report is presented a case of 60 year old woman diagnosed with hypothyroidism after being infected with SARS-CoV-2 in 2021. Since 2010 the patient was struggling with depression, increased appetite and low blood pressure. The patient is in menopause. After the infection with corona virus the patient's condition with depression, anxiety and fear worsened. She was prescribed Asentra 50mg per day and Dimitrin 10mg per day.

The patient has done 38 acupuncture treatments from January 2021 till April 2022. The acupuncture treatments were made in acupuncture clinic for TCM and acupuncture in Skopje, North Macedonia by doctor specialist in acupuncture. The treatment duration is 30-45 minutes. Treatments were done indoor, on a room temperature, with normal acupuncture with fine sterile disposable needles sized 0.25x25mm. Acupuncture points used in the treatments are: GB20 (FengChi), DU20 (BaiHui), DU14 (DaZhui), ST9 (RenYing), BL20 (PiShu), BL15 (XinShu), BL23 (ShenShu), DU4 (MingMen), LI4 (HeGu), RN6 (QiHai), RN4 (QuanYuan), ST36 (ZuSanLi), SP9 (YinLingQuan), SP6 (SanYinJiao), LR2 (TaiChong) and KI3 (TaiXi).

The patient has done 5 blood test analysis during the treatments. The results are

presented in table 1.

Table 1. Results from blood test analysis

Date	TSH (0.45-5.33 mIU/mL)	fT4 (7.88-19.40 pmol/L)	Anti TPO (<8 IU/ mL)	Anti TG (<18 IU/ mL)
19.02.21	58.75	0.46	926	12.1
12.04.21	32.72	/	/	/
30.11.21	14.53	9.46	179.6	152
03.03.22	11	10.9	139	100.5
01.04.22	6.55	/	/	/

The condition was slowly improving. The TSH levels decreased from 58.75 to 6.55 mIU/mL (0.45-5.33 mIU/mL), fT4 normalized from 0.46 to 10.9 pmol/L (7.88-19.40 pmol/L). Anti TPO levels decreased from 926 to 139 IU/mL (<8 IU/mL). Anti TG levels are still in the process of normalization.

Taking into account that this is an adult patient in menopause and diagnosed with depression and anxiety, conditions that further complicate the possibility of faster treatment, the treatments are slow and longer lasting but with gradual excellent results. The results so far are satisfactory and the patient will continue with the treatments until the condition is completely normalized and the TSH level is within normal limits. The condition will be monitored and further there will be a follow up of the work with new additional results.

According to TCM, in hypothyroidism the main affected systems are Spleen, Kidney and Heart and the main cause is Yang deficiency which fails to run the function of the body to warm, transform and motivate. The treatment doesn't affect and is not only focused on rebalancing the thyroid gland and thyroid function but the whole body is affected and treated as well. [1]

The acupoints chosen in the treatment help in endocrine disorders by regulating the hormones, regulating the neuro-immune-endocrine system, reducing the titer of anti-thyroid antibodies, regulating the hormones of pituitary-target gland axis, regulating the Qi in the meridians and other. [5]

Conclusion

Acupuncture has a huge effect and a positive influence on the function of the thyroid gland despite long-term treatments that require a lot of patience on the part of both the doctor and the patient. With regular treatments good results are guaranteed

Source of funding

This research received no specific grant from any funding agency in the public, commercial, or not-for profit sectors.

Conflict of interest

The author have declared that no competing interests exist.

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Statement of Informed Consent

Written informed consent was obtained from the patient for their anonymized information to be published in this article.

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Acupuncture treatment in chronic prostatitis

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Abstract

Chronic prostatitis/chronic pelvic pain syndrome (CP/CPPS) is a genitourinary disease commonly seen in male, with symptoms involving pelvic pain, urinary system disease, painful urination and sexual dysfunction, which seriously affects physical and mental health, and also influences the quality of life of patients. Acupuncture is the primary form of Traditional Chinese Medicine (TCM) that can show good curative effect with advantages of safety and affordability. Acupuncture is able to lower CP/CPPS symptoms without the drug treatments associated side effects. In this article is presented a case of 59 year old man with chronic prostatitis that has been present for more then one year. The patient has made 10 acupuncture treatments in a period of one and a half month. The blood results done before the treatment show - PSA 4.53 ng/ml (ref. range for male <4 ng/ml), on medications - PSA 4.28 ng/ml and after acupuncture treatment 2.16 ng/ml. Acupuncture points used in the treatments are: Baihui DU20, Hegu (left and right) L14, Zhongwan RN12, Guanyuan RN4, Tianshu (left and right) ST25, Qūgǔ RN2, Zúsānlí (left and righ) ST36, Sanyinjiao (left and right) SP6. Acupuncture has been used widely and a number of clinical researches have indicated that it is a safe and effective treatment to prevent and treat prostatitis.

Kay words: prostatitis, acupuncture, Traditional Chinese Medicine, urology

Introduction

Prostatitis is inflammation (swelling) of the prostate gland. The disorder can be very distressing and painful, but often by the time it gets better. The prostate is a small gland located between the bladder and the penis. The gland produces fluid mixed with sperm due to create semen. It is the most common urological diagnosis among adult men around the age of 50-70. Urologists give the diagnose for prostatitis by sending the patient to have a urine test, therefore the doctor can check for bacteria and other signs of infection. Patient might also need a blood test, might be offered a PSA test, ultrasonography, might also have a digital rectal examination to see if the prostate is inflamed and painful, and the doctor may examine stomach area (abdomen) and penis. Chronic prostatitis/chronic pelvic pain syndrome (CP/CPPS) is one of the most common urological diseases in male. The CP/CPPS is the most common prostatitis syndrome, comprising 90–95% of prostatitis cases. Symptoms that may occur are: discomfort or repeated and chronic pain in the pelvic region, urinary or ejaculatory symptoms such as dysuria, frequent urination, incomplete emptying or ejaculatory pain. Some patients may appear other symptoms like fatigue, dizziness, memory loss, anxiety and depression. The pathophysiology of e diseaset is still unclear. The treatment is aimed mainly to relieve the patient of the clinical symptoms and improve the quality of life. Conventional oral medications include antibiotics, α -blockers, anti-inflammatory drugs, which may have a lot of side effects like gastrointestinal reaction, orthostatic hypotension and other. Current research data indicates that there is still no ideal treatment for prostatitis.[1][2][3]

For a long time, acupuncture has been widely used as an essential and safest alternative or complementary treatment method against various diseases word-wide. Acupuncture is the primary form of Traditional Chinese Medicine (TCM) that uses needles to puncture into acupoints located on the skin. Acupoints are points located on

the meridians on the body that can be mechanically stimulated and can trigger nerve signals that affects the function of other parts of the body. Acupuncture raises the level of certain hormones, gamma globulin, antibodies, ie has immuno-stimulating effect, stimulating the production of endorphins, influencing the production and secretion of several neurotransmitters and improving the circulation. [4]

Case report

The treated patient presented in the research is a 59 year old man with chronic prostatitis that has been present for more than one year. He was diagnosed with chronic prostatitis and benign prostatic hyperplasia (BPH) or prostate gland enlargement. Before starting the treatments, the patient tried different medicines like alpha-blockers and antibiotics but without any evidential results. He even felt more uncomfortable in gastric system.

The blood results done on 27.09.2022 are showing the following - PSA 4.53 ng/ml (ref. range for male <4 ng/ml), prostate volume 42.7 ccm, RU 60ml. The therapy prescribed by urology doctor is - Caps. Tamsulosin 0.4mg x 1 morning – 3 months, Tabl. FinesteridPharma S x 1 morning -3 months, Tabl. Levofloxacin 500 mg 1x1 - 28 days, Probiotic 1x1 -28 days. A re-check in one month is recommended for new probable PSA outcome.

The patient started the prescribed therapy but even after one month the symptoms such as frequent urination and incomplete emptying were still present. After taking the medications the patient developed gastric problems and high blood pressure.

A new PSA test was done on 11.11.2022 showing PSA 4.28 ng/ml (ref. value for male <4 ng/ml). With these still high and unchanged values, the patient decided to stop the therapy and start with acupuncture treatment. The acupuncture treatments were made in acupuncture clinic for TCM and acupuncture in Skopje, North Macedonia by doctor specialist in acupuncture. The patient has made 10 acupuncture treatments in

a period of one and a half month. The treatment duration is 30-45 minutes. Treatments were done indoor, on a room temperature, with normal acupuncture with fine sterile disposable needles sized 0.25x25mm. Acupuncture points used in the treatments are: Baihui DU20, Hegu (left and right) L14, Zhongwan RN12, Guanyuan RN4, Tianshu (left and right) ST25, Qūgǔ RN2, Zúsānlí (left and right) ST36, Sanyinjiao (left and right) SP6.

Four acupuncture treatments were done twice per week, when the urinary symptoms disappeared. The patient continued with the treatments once per week until the PSA level normalized to normal range level PSA - 2.16 ng/ml (done on 23.12.2022) and the pelvic pain syndrome disappeared too. The blood results are presented on table 1. Preventively, the patient comes twice a month in the clinic for overall health protection.

Table 1. PSA results before and after the treatment and during taking medications

Ref. value for PSA	< 4 ng/ml
Before acupuncture and medications	4.53 ng/ml
Before acupuncture, on medications	4.28 ng/ml
After acupuncture, without medications	2.16 ng/ml

The effect of acupuncture in the treatment of chronic prostatitis/chronic pelvic pain syndrome (CP/CPPS) is definite, and progress has been made in the studies of its functional mechanism. This article discusses the related studies on the mechanism of acupuncture in the treatment of CP/CPPS from five aspects: regulating immunity, anti-oxidative stress, regulating neural functions, improving urodynamics, and regulating blood circulation. It is found that acupuncture can decrease the level of pro-inflammatory factors, increase the level of anti-inflammatory factors, and regulate the

level of inflammatory regulatory factors, thus regulating immunity. Acupuncture can improve the body's ability of anti-oxidative stress, regulate the balance state of oxidation and anti-oxidation, relieve tissue damage and regulate neural functions by modulating neurotransmitters and autonomic nerves. Acupuncture can improve urodynamics and relieve abnormal urination symptoms by regulating the contractions of pelvic floor muscles, also to promote blood circulation to treat the pelvic congestion. [5]

Treatment with TCM takes more time, but the aim is no to intoxicate the organism, but in the most natural way to help the body to heal with its own ability. The treatment has a positive effect not only locally but also generally on the whole well-being. It helps in resolving stagnation, balances the energy, calms the spirit, nourishes the blood, Yin and Yang, relieves the pain, benefits the brain, strengthens the organs and expels all pathogenic factors like wind, cold, heat and dampness. Traditional Chinese Medicine (TCM) dates back more than 5,000 years ago and includes variety of therapies. It is safe, accessible, effective and affordable treatment. A main element of TCM is the holism meaning that the human being is seen as a whole and a part of nature. In TCM each patient is seen as an individual and for each patient the therapy is different. All medicines used in TCM are natural, which is one of the main benefits, which is contrary to Western medicine. Modern medicine generalizes diseases, while Chinese medicine focuses on finding specificities and the root of the problem and treating them. [4]

Conclusion

Acupuncture, as a part of the Traditional Chinese Medicine, in our practice presented very satisfying and positive results in the treatment of chronic prostatitis, resulting in overall health improvement.

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Acupuncture treatment in facial paralysis (Bell's palsy)

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Abstract

Facial paralysis is a medical condition that occurs when there is weakness or loss of movement in the facial muscles. Acupuncture is a traditional Chinese medicine technique that involves inserting thin needles into specific points on the body to stimulate healing and alleviate pain. Acupuncture as a part of traditional Chinese medicine can help improve the symptoms of facial paralysis by promoting blood flow and nerve function in the affected area. In this article is presented a case of 33 year old man with right-side peripheral facial paralysis. The patient started the acupuncture treatment within 24 hours on the onset of the paralysis. The treatments were performed in a period of one and a half month. After 12 acupuncture treatments, the patient had an improved Brackmann's score (was able to lift the eyebrow and move the mouth outward). The selected acupuncture points are: GB16 Mu Chang, DU20 Baihui, GB14 Yang Bai, HN5 Taiyang, SI18 Quan Liao, ST6 Jiache, LI20 Ying Xiang, RN24 Cheng Jiang, LI4 Hegu, GB36 Waiqiu and SP6 Sanyinjiao. After 12 acupuncture treatments, the patient experienced significant improvement in facial muscle function from no movement to mild weakness. The patient also reported a significant reduction in pain and discomfort. Early acupuncture treatment has a great benefit for patients with peripheral facial paralysis.

Kay words: paralysis, acupuncture, traditional Chinese medicine, Bell's palsy

Introduction

Facial paralysis, is a neurological disorder characterized by weakness or complete paralysis of the facial muscles due to damage or disruption of the facial nerve. This results in an inability to control facial movements and expressions, as well as other associated symptoms such as drooping of the eyelid or corner of the mouth, difficulty closing the eye on the affected side, drooling or difficulty controlling saliva, increased sensitivity to sound in one ear, and loss of taste sensation on the front two-thirds of the tongue, pain around the jaw or in or behind your ear on the affected side. Partial or more often complete paralysis is developed within hours, maximum to 72 hours. The prevalence of facial paralysis is slightly higher in women. Facial paralysis can occur at any age and the cause may be unknown. It is thought that facial paralysis is caused by inflammation and swelling of the nerve that is in control of the muscles located on one side of the face. A reaction of viral infection might be a cause too. Facial paralysis occurs more often in pregnant women, especially during the third trimester or in the first week after giving birth, in patients with upper respiratory infection, such as flu or cold, diabetes, high blood pressure or obesity.

Facial paralysis is diagnosed based on a physical examination of the face and assessment of the facial muscle function. The doctor asks the patient to perform various facial movements, such as closing the eyes, lifting the brow, showing the teeth and frowning, to evaluate the extent of facial weakness. Other conditions, such as stroke, infections, Lyme disease, inflammatory conditions and tumors, can present similar symptoms of facial muscle weakness, and may require additional testing to confirm or rule out a diagnosis of facial paralysis. [1] [2]

Most people with facial paralysis recover fully — with or without treatment within a period of three to six months. There's no one-size-fits-all treatment for paresis. Facial

paralysis is typically treated with medications that can help reduce inflammation and swelling of the facial nerve, as well as antiviral drugs in some cases. [3]

Facial muscle paralysis due to facial paresis can lead to muscle shrinkage and shortening, which may become permanent if not addressed. To prevent this, a physical therapist can teach patient how to massage and exercise the facial muscles to help improve circulation and prevent muscle atrophy also help retrain the facial muscles to move correctly and regain strength.

In Traditional Chinese Medicine (TCM), facial paresis or paralysis, also known as Bell's palsy, is attributed to the invasion of external pathogenic factors, specifically Wind and Cold, which obstruct the flow of Qi and Blood in the face. This can result in the dysfunction of the facial nerve and the muscles it controls, leading to weakness or paralysis of the facial muscles. TCM theory views the body as a whole, and considers the underlying conditions that may have contributed to the development of Bell's palsy, such as stress, exhaustion, or recent illness.

Acupuncture is a commonly used treatment for facial paresis in TCM. The World Health Organization (WHO) notes that acupuncture is an effective treatment in treating cases with facial paralysis. In China, there has been a long history in the treatment of peripheral facial paralysis with acupuncture, called "deviated mouth." Acupuncture involves the insertion of fine needles into specific points along the meridians, which are channels of energy that flows through the body. By inserting the needles at specific points, acupuncturists aim to stimulate the body's natural healing response and restore the flow of Qi and Blood in the affected area. The goal of acupuncture treatment for facial paresis is to increase blood flow and Qi to the affected area, reduce inflammation and swelling, and help restore function to the facial muscles. Other TCM treatments, such as herbal remedies, dietary therapy, and moxibustion, may also be used in conjunction

with acupuncture to address the underlying conditions that may have contributed to the development of Bell's palsy. [4]

Case report

The treated patient presented in this research is a 33 year old man with right-side peripheral facial paralysis. The patient reported experiencing tingling and numbness on the right side of his face before developing weakness and drooping of his facial muscles. The patient was otherwise healthy and had no history of previous facial paralysis or neurological conditions. Upon examination, the patient was diagnosed with peripheral facial paralysis, and acupuncture treatment was recommended. The patient received acupuncture treatment within the first 48 hours of symptom onset. The acupuncture treatments were made in acupuncture clinic for TCM and acupuncture in Skopje, North Macedonia by doctor specialist in acupuncture. The patient has made 12 acupuncture treatments in a period of one and a half month. The treatment duration was 30-45 minutes. Treatments were done indoor, on a room temperature, with normal acupuncture with fine sterile disposable needles sized 0.25x25mm. Acupuncture points used in the treatments are: GB16 Mu Chang, DU20 Baihui, GB14 Yang Bai, HN5 Taiyang, SI18 Quan Liao, ST6 Jiache, LI20 Ying Xiang, RN24 Cheng Jiang, LI4 Hegu (left and right), GB36 Waiqiu (left and right) and SP6 Sanyinjiao (left and right)

The patient's Brackmann score improved from IV to I, indicating a significant improvement in facial-nerve function following acupuncture treatment. This improvement in Brackmann score is consistent with the observed improvement in facial function, as reported in Table 1.

Table 1. *Obtained results during the therapies in a period of one and a half month*

Treatment Number	Complaint	House-Brackmann Score Difference between 2Sides (mm)
1	Motion : Forehead –none; Asymmetric smile, unable to whistle or drink through a straw, incomplete closure of the eye.	IV eyebrows =7 mm eyes = 3 mm lip = 5 mm
2	Motion : Forehead –none; Asymmetric smile, unable to whistle or drink through a straw, incomplete closure of the eye.	IV eyebrows = 7 mm eyes = 3 mm lip = 5 mm
3	Motion: Forehead -slight to moderate movement , complete closure of the eye with effort ,smile began to become more symmetrical, and there was energy in the right cheek, but the patient was unable to drink through a straw	III eyebrows = 5 mm eyes = 1 mm lip =4 mm
4	Motion: Forehead- slight to moderate movement. Smile began to become symmetrical, and there was energy in the right cheek, but the patient was unable to drink through a straw.	III eyebrows = 4mm eyes = 1mm lip = 4 mm
5	Motion: Forehead-slight to moderate movement, complete closure of the eye with effort Smile began to become symmetrical, the right cheek could be moved, and the patient could drink through a straw weakly.	III eyebrows = 3mm eyes = 1 mm lip = 3 mm

6	<p>Motion: Forehead- moderate to good function, Eye complete closure with minimum effort. When closed, the mouth seemed almost normally symmetrical, the right cheek could be moved, and the patient could drink through a straw weakly. He can't whistle with his mouth.</p>	<p>II eyebrows =2mm eyes = 0 mm lip = 2 mm</p>
7	<p>Motion: Forehead – moderate to good function. Smile was almost symmetrical, the bottom lip began to contract, the right cheek could be moved, and the patient could drink through a straw.</p>	<p>II eyebrows =2mm eyes = 0 mm lip = 1 mm</p>
8	<p>The smile was almost symmetrical, and the lower lip began to contract. He start whistle with his mouth.</p>	<p>I eyebrows = 1mm eyes = 0 mm lip = 1 mm</p>
9	<p>The smile was almost symmetrical, and the lower lip began to contract.</p>	<p>I eyebrows = 1 mm eyes = 0 mm lip = 1 mm</p>
10	<p>The smile was almost symmetrical, and the lower lip began to contract.</p>	<p>I eyebrows = 1 mm eyes = 0 mm lip = 1 mm</p>
11	<p>Motion: Forehead –normal Eye – complete closure with no effort Mouth – symmetrical normal</p>	<p>I eyebrows = 0 mm eyes = 0 mm lip =0mm</p>
12	<p>Normal facial function and he is able to perform all related actions without any apparent difficulty</p>	<p>I eyebrows = 0 mm eyes = 0 mm lip = 0 mm</p>

The patient reported feeling an improvement in his symptoms after the second acupuncture treatment. He reported a reduction in facial drooping and an increase in his ability to move his mouth and eyes on the affected side of his face. The patient received a total of 12 acupuncture treatments over a period of one and a half month. At the end of his acupuncture treatment facial paralysis had significantly improved. His ability to close his eye and lift his eyebrow had returned to normal, and the asymmetry of his face had greatly reduced. After the last therapy he was able to perform all facial function and related actions without any apparent difficulty. The patient reported feeling more confident and comfortable in social situations and reported no side effects from the acupuncture treatment.

In TCM theory, peripheral facial paralysis, also known as Bell's palsy, is often attributed to an imbalance of Qi and blood flow in the affected area. Acupuncture treatment aims to restore balance and promote healing by regulating the flow of Qi and blood. In TCM, diseases are not generalized but instead, the focus is on finding the root cause of the problem and treating it. This approach is known as "treating the root and not just the branch." TCM doctors aim to resolve stagnation, balance the body's energy, calm the spirit, nourish the blood, Yin and Yang, relieve pain, benefit the brain, strengthen the organs, and expel pathogenic factors like wind, cold, heat, and dampness. TCM is a safe, effective, and natural system of healthcare that has been used for thousands of years. Its holistic approach to health and individualized treatment plans make it a valuable alternative to Western medicine.

Early acupuncture treatment during the acute stage of peripheral facial paralysis has demonstrated benefits for patient, as evidenced by an increase in both the effective rate and cure rate of treatment. [5] [6]

Conclusion

Acupuncture has been shown to be a safe and effective treatment for peripheral facial paralysis. This case study shows that acupuncture can help to shorten healing time and improve the overall effectiveness of treatment, particularly when administered during the acute stage of the condition. As a non-invasive and natural treatment option, acupuncture may be a valuable addition to the treatment plan for patients with peripheral facial paralysis, providing both local and general benefits to the body and promoting overall well-being.

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Acupuncture treatment in male patient presented with oligoasthenoteratozoospermia

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Abstract

Oligoasthenoteratozoospermia (OAT) is one of the most common causes of male infertility. Male fertility may be affected by blood pressure, depression or medications used in the treatment of cancer or like steroids. In this research is presented a case of a 35 year old man diagnosed with oligoasthenoteratozoospermia. The patient underwent 5 acupuncture treatments in a period of one month (17.11.22 - 17.12.22). The semen analysis shows low number of sperm count, low number of progressive and slow sperms, high number of immobile sperms and presence of leukocytes. With the acupuncture treatment the number of semen from $8 \times 10^6/\text{ml}$ was increased to $23 \times 10^6/\text{ml}$. The total number of semen was increased from $48 \times 10^6/\text{ml}$ to $73 \times 10^6/\text{ml}$. The progressive sperm cells were increased from 15% to 21%, the slow sperm cells from 30% to 80%, the immobile were decreased from 45% to 27%. The live sperm count was increased from 70 to 111 and the normal sperm shape was increased from 4 to 5. Treatments were done once a week with duration of 35-40 minutes. Acupuncture as part of the Traditional Chinese Medicine is a safe and effective treatment in treating oligoasthenoteratozoospermia, as it improves male infertility by increasing both the quality and quantity of sperm for a very short time of period.

Key words: - fertility, acupuncture, traditional chinese medicine, oligoasthenoteratozoospermia

Introduction

Oligoasthenoteratozoospermia (OAT) is one of the most common causes of male infertility. It is a condition covering three underlying problems:

1. Oligozoospermia - low sperm count,
2. Asthenozoospermia - poor motility and
3. Teratozoospermia - abnormal morphology of sperm.

Male fertility may be affected by blood pressure, depression or medications used in the treatment of cancer or like steroids. Other influencing factors are: genetics, infections, abnormal hormonal levels, fibrosis, tumors, diabetes, lifestyle habits like smoking cigarettes or alcohol consumption and other. Symptoms that may arise are swelling of the scrotum, infertility and inability to achieve pregnancy after one year of trying. The diagnosis is established by physical examinations, blood test, semen analysis, genetic test, scrotum ultrasound and other.

Western medicine treatment options for OAT depend on the causes and they may be medications, sperm retrieval or surgery. Western Medicine suggests proper life changes that may influence positively sperm count, such as quitting cigarettes, weight loss, and managing stress. It also recommends use of antibiotics, anti-inflammatory, pituitary stimulants and prolactin lowering medications. [1] [2] [3]

Everything in the world is formed by energy and so is the human body. In order to achieve state of health, the energies inside the body (Yin and Yang) have to maintain in balance. When the energies are imbalanced, disease is formed. According to Traditional Chinese Medicine (TCM) theory, the sperm will be of better quality if the male partner's whole body health is increased. According to TCM the causes of male infertility are OAT, constitutional kidney weakness; excessive or early-age sexual activity; overworking; overexertion; consuming cold liquids and food with cold energy or greasy

food. Men with low sperm count are more likely to develop prostate or testicular cancer later in their life. [3] [4]

Case report

In this research is presented a case of a 35 year old man diagnosed with oligoasthenoteratozoospermia. The patient's condition is idiopathic, not genetic. No infections were diagnosed and no additional symptoms were present. The diagnosis has been confirmed one week before starting the treatments. The patient hasn't been taking any other additional medications.

Acupuncture treatments were proceeded in a clinic for Traditional Chinese Medicine and Acupuncture in Skopje, Macedonia by MD, PhD, TCM specialist. The patient underwent 5 acupuncture treatments in a period of one month (17.11.22 - 17.12.22). Treatments were done once a week with duration of 35-40 minutes. The 0.25x25mm dimension sterile needles were used in the treatment and manufactured by Wuijiang City Medical Health Material Co., Ltd.

The acupuncture points used in the treatment are: RN1 (HuiYin), DU20 (BaiHui), DU1 (ChangQiang), N12 (ZhongWan), ST25 (TianShu), RN6 (QiHai), RN4 (GuanYuan), BL32 (CiLiao), BL28 (PangGuangShu), ST26 (WaiLing), PC6 (NeiGuan), LI4 (HeGu), ST36 (ZuSanLi), GB34 (YangLingQuan), SP6 (SanYinJiao), SP9 (YinLingQuan), LR3 (TaiChong), KI3 (TaiXi) and KI1 (YongQuan).

Two semen analysis were made before and after starting the treatments. The results are presented in table 1.

Table 1. Cytological analysis of semen before and after the acupuncture treatments

Values	10.11.2022	20.12.2022	Ref. Values
Abstinence	4 days	4 days	3-5 days

Color	Opalescent	Opalescent	Opalescent, white
Viscosity	/	Normal	
Volume	4	5.3	2-6 MAC
pH	8	7.6	7-8 ISE
Liquefaction	30	30	30-60 min
Number of sperm	8	23	20-120x10 ⁶ /ml
Total number of sperm	48	73	40-400x10 ⁶ /ml
Mobility			>40%
Progressive (A)	15	21	>25%
Slow (B)	30	80	>50% (A+B)
Moving in place (C)	10		<50%
Immobile (D)	45	27	5-10%
Live sperm count	70	111	>58
Morphology			
Normal sperm shape	4	5	>4
Head deviations	45		/
Neck deviations	46		/
Tail deviations	5		/
Germ cells	Low		Present
Agglutinates	No		No
Epithelial cells	Low		Low
Leukocytes	3	Negative	<0-1x10 ⁶ /ml

The semen analysis shows low number of sperm count, low number of progressive and slow sperms, high number of immobile sperms and presence of leukocytes. With the acupuncture treatment the sperm count was increased, the number of progressive and slow sperms was increased, the number of immobile sperms was decreased and no presence of leukocytes was found.

The number of semen from 8x10⁶/ml was increased to 23x10⁶/ml. The total number of semen was increased from 48x10⁶/ml to 73x10⁶/ml. The progressive sperm cells were

increased from 15% to 21%, the slow sperm cells from 30% to 80%, the immobile were decreased from 45% to 27%. The live sperm count was increased from 70 to 111 and the normal sperm shape was increased from 4 to 5. These very satisfying results were achieved in only one month.

Patients with low energy of the Kidney usually have low sperm count. According to TCM, depleted energy in the Kidney meridian is the origin of all reproductive problems. The Kidney is the organ responsible for controlling reproduction and storing the body essence. Other problems may arise from Liver Qi energy stagnation or Spleen and Heart deficiency. The treated points are located on these meridians (Kidney, Heart, Spleen, Liver). The major goal of the treatment is rebalancing and replenishing the energy of the patient.

The treatment helps to increase the blood flow to the reproductive organs, to balance the endocrine system, tonify Liver and Kidney Qi, remove stagnation, resolve masses, release endorphins, improves semen morphology, positively influence semen quality and other. [3] [4]

Conclusion

Acupuncture as part of the Traditional Chinese Medicine is a safe and effective treatment in treating oligoasthenoteratozoospermia, as it improves male infertility by increasing both the quality and quantity of sperm for a very short time of period.

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Conflict of interest

The author have declared that no competing interests exist.

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Statement of Informed Consent

Written informed consent was obtained from the patient for his anonymized information to be published in this article.

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Traditional Chinese Medicine in Gonarthrosis

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Abstract

Gonarthrosis is a degenerative joint disease that is typically characterized by the gradual loss of articular cartilage in the knee joint. It is also associated with other changes such as abnormal bone formation, reactive changes in the synovial membrane, and pathologic synovial fluid. Acupuncture and fire needle acupuncture are a traditional Chinese medicine (TCM) techniques that can significantly help in treating of gonarthrosis, particularly in reducing pain and improving physical function. Both acupuncture and fire needle acupuncture have anti-inflammatory effects that can help to alleviate pain and reduce inflammation in the knee joint. In this article is presented a case of 62 year old woman with a main complaint of chronic knee pain due to gonarthrosis. Patient had this problem for more than two years. After 7 treatments, with a combination of acupuncture and fire needle acupuncture once weekly, the patient have reported improvements in self-assessment of pain using the Visual Analog Scale (VAS) score of 2 out of 10. The selected acupuncture points are: ST 35 (Du bi), ST 36 (Zu san li), ST 34 (Liang qiu), SP 10 (Xuehai), GB 34 (Yang ling quan), SP6 (San yin jiao). Fire needling was done on Ashi points i.e. trigger points found on places where the pain is most dominant or where the place is obviously inflamed. In addition to pain relief, the patient also reported an improvement in the physical function.

Key words - gonarthrosis, traditional Chinese medicine, acupuncture treatment

Introduction

Gonarthrosis is a degenerative joint disease that affects the knee joint. It is characterized by the gradual loss of joint cartilage, which can lead to pain, stiffness, and reduced mobility.

Gonarthrosis, a condition that affects the knee joint, is viewed in Traditional Chinese Medicine (TCM) as an impediment disease that can be caused by various factors, including external pathogenic factors such as wind, dampness, and cold, as well as internal factors such as deficiency and stagnation. TCM recognizes that the knee joint relies on various structures, including bones, tendons, ligaments, and cartilage, to facilitate movement and support the body. [1]

Wind is considered to be the cause of around a hundred diseases in TCM and can cause havoc by moving pain from joint to joint. External pathogenic factors such as cold can also enter the body and cause severe pain, especially in the knee joint. Furthermore, aging is believed to involve the gradual reduction of vitality and vital substances, particularly in the kidneys, which govern the health of the lower limbs, ankles, feet, and knees. Therefore, during the treatment of gonarthrosis, patients may also be treated for weakness in the kidneys. Changes in weather can worsen knee pain, as external pathogenic factors such as cold or dampness can exacerbate the pain. In TCM, the absence of pain in muscles or joints is associated with the free flow of Qi and blood without obstruction. Pain can occur when there is a hindrance or blockage of Qi and blood flow through the channels and vessels, or when there is insufficient Qi and blood. Therefore, treatment for gonarthrosis in TCM aims to promote the free flow of Qi and blood to the affected knee joint to relieve pain and improve joint function. Overall, TCM recognizes the interconnectedness of the body and views gonarthrosis as a manifestation of imbalance in the body's internal and external environment. The holistic approach to treatment in TCM aims to restore balance and promote the body's

innate healing ability, thus providing a comprehensive and effective treatment option for patients with gonarthrosis. [2] [3]

Case report

In this article is presented a 62 year old woman with a main complaint of chronic knee pain due to gonarthrosis. She has been experiencing pain in both knees for the past two years and reported difficulty walking and climbing stairs. She has tried various medications for pain relief, but they provided only temporary relief. Upon examination, the patient was found to have swelling and tenderness in both knees. She reported a pain level of 8 out of 10 on the VAS scale. She has no other significant medical history and was not taking any medications.

TCM provides a holistic approach that addresses the underlying causes of the disease. This case report presents the successful management of gonarthrosis using a combination of acupuncture and fire needle acupuncture therapy. The treatments were made in acupuncture clinic for TCM in Skopje, North Macedonia by a doctor specialist in acupuncture. The patient has made 7 treatment combination of acupuncture and fire needle acupuncture once weekly. Treatments were done indoor, on a room temperature, with a combination of normal acupuncture with fine sterile disposable needles sized 0.25x25mm, and fire needle acupuncture. For the fire needling was used sharp headed needle made of tungsten steel, which was heated by ethanol lamp and quickly inserted on the points and removed instantly. Fire needle acupuncture was performed on the most painful areas around the knee joint. This involved heating the needle and inserting it into the selected painful points called Ashi points. Acupuncture needles were inserted at specific points ST 35 (Du bi), ST 36 (Zu san li), ST 34 (Liang qiu), SP 10 (Xuehai), GB 34 (Yang ling quan), SP6 (San yin jiao). The treatment duration was 20-30 minutes. The patient received a total of 7 treatments combination of acupuncture and fire needle acupuncture over a period of seven weeks.

Acupuncture is an integral part of TCM and is believed to work in three ways to alleviate pain. Acupuncture's initial mechanism entails enhancing circulation in the afflicted region, resulting in the elimination of toxins and fluids induced by inflammation. This increased blood flow brings in more oxygen and facilitates faster tissue repair. Moreover, acupuncture helps to relax painful trigger points in the muscles and alleviate tension in the muscle fibers. Ultimately, acupuncture serves to naturally alleviate pain by instigating the body's inherent healing processes. One effective technique within acupuncture is the fire needle technique, which is commonly used to treat arthritis, gonarthrosis, sports injuries, and tendonitis. This technique involves heating a specialized needle and then inserting it quickly into the affected area before promptly removing it. Fire needle acupuncture has been shown to improve blood circulation, reduce inflammation, eliminate calcifications and contractures, eliminate cold and dampness, and relieve pain. [4] [5]

After the first treatment, the patient reported a reduction in pain to 6 out of 10 on the VAS scale. After the third treatment, the patient reported a further reduction in pain to 4 out of 10. By the end of the treatment course, the patient reported a significant improvement in pain relief, with a VAS score of 2 out of 10. In addition to the pain relief, the patient also reported an improvement in the physical function. She was able to walk and climb stairs more easily than before the treatment. Patient reported significant improvements in pain, stiffness and mobility, indicating a substantial improvement in her quality of life. [6] [7]

Conclusion

As an integral part of TCM, the combination of acupuncture and fire needle acupuncture technique, as a non-invasive and holistic treatment proves to be highly efficacious in addressing knee pain, eliciting positive outcomes, and offering short-term pain relief. Through its various mechanisms, including improving circulation, reducing

inflammation, and promoting the body's natural healing processes, acupuncture has been shown to effectively alleviate pain and improve overall function in individuals affected with this condition. With its non-invasive and natural approach, acupuncture represents a valuable addition to traditional treatment modalities for gonarthrosis and helps to enhance patient outcomes and quality of life.

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Conflict of interest

The author have declared that no competing interests exist.

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Statement of Informed Consent

Written informed consent was obtained from the patient for their anonymized information to be published in this article.

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Carbon footprint of Traditional Chinese Medicine

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Abstract

Traditional Chinese Medicine (TCM) is a well-established healthcare system that has been used in China for over 2,000 years. However, the growing concerns about environmental sustainability and pollution have led to an increased demand for green practices in healthcare. TCM is widely used in many countries due to its efficacy and minimal side effects. Though the production and transportation of TCM can generate significant greenhouse gas (GHG) emissions, contributing to climate change. Acupuncture is the most famous TCM Practice. The production of acupuncture needles is a significant contributor to the carbon footprint of TCM. Currently, the carbon Footprint makes up 60% of humanity's Ecological Footprint. This paper aims to explore possibilities green practices in acupuncture, including sustainable materials for packaging, waste reduction, and energy-efficient acupuncture clinics.

Key words: carbon footprint, TCM, North Macedonia

Introduction

The health of people and animals depends on a healthy environment. The provision of healthcare services may have extremely negative effects on the environment. For instance, the manufacture, distribution, and storage of medications may hasten the depletion of natural resources while also hastening the degradation of the environment with waste products. Hence, healthcare that is meant to maintain the health of people and animals could causes environmental 'illness'. It is becoming ever more apparent that

the current model of healthcare delivery within developed countries is not sustainable. There are at least two major problems: the continuing development of expensive, high-technology approaches to diagnosis and treatment, which are putting an unsustainable economic burden on healthcare organisations; and the rapidly increasing carbon footprint of modern healthcare delivery systems, resulting in an unsustainable burden on the planet. According to Karliner health care's climate footprint is equivalent to 4.4% of global net emissions (2 gigatons of carbon dioxide equivalent). [1]

Due to globalization of TCM, TCM is gaining popularity as a complementary alternative medicine around the world, with more healthcare businesses in the market, social networks and media attentions. There are activities in TCM which entail environmental impacts. Wastes from treatments such as cottons, needles, chemical, greenhouse emissions from travelling, or direct use of energy in the healthcare facilities such as polyclinics, are growing concerns to human health and the environment. [2] [3]

Acupuncture is a TCM practice that has been used for centuries in China. Involves the insertion of needles into specific points on the body to stimulate the flow of energy or qi. On the other hand, the production of acupuncture needles is a significant contributor to the carbon footprint of TCM. Acupuncture itself does not have a direct carbon footprint, as it is a manual therapy that does not involve the use of machinery or other resources that could have a significant impact on the environment. However, the production and disposal of acupuncture needles and other equipment could have some environmental impact. The materials used to make the needles and other tools, such as stainless steel, may require significant energy and resources to produce. Additionally, the disposal of used needles and other acupuncture waste could have environmental consequences if not properly managed. The carbon footprint is a measure of the total amount of greenhouse gases (GHGs) emitted throughout the life cycle of a product or service. The carbon footprint of TCM acupuncture needles has not been widely

studied. The disposal of used needles can contribute to the carbon footprint in a few ways. First, the energy used to transport the needles from the point of use to the disposal facility can result in greenhouse gas emissions. Additionally, if the disposal facility uses incineration to destroy the needles, this can also release carbon emissions into the atmosphere. [4] [5]

UN sustainable development goals aim to achieve awareness for sustainable development and lifestyles with nature by 2030, where people are being educated and relevant information can be easily accessible from anywhere by everyone.[6] For that, being aware and understanding the needs to adopt green initiatives are crucial to consistent and persistent green practices throughout the existing and future systems. The rules for protecting the environment, the roles and activities of companies, organizations, and corporations, as well as the efforts of individuals in the ecosystems, will have a significant impact on the globe. Sustainability is achieved through social, economic, and environmental pillars. A climate neutral planet, as envisioned during the 2015 Paris Climate Change Accord, would expect people to live without net greenhouse gas emissions during the second part of this century in tandem with efforts to reduce carbon footprint and global warming. [7] [8]

Green practices in the TCM industry involve upstream, downstream and management of TCM businesses. Hence, guidelines on practices in TCM can range from herb farming processing, TCM treatments and organizational management . The study focus was on TCM organizational stakeholders who work at TCM clinics, as the interactions might not confine to only management and downstream of TCM clinics. The perspective on green practices from these study participants can be extended into other parts of the value chain.

This paper aims to explore green practices in acupuncture, including sustainable materials for packaging, waste reduction and energy-efficient acupuncture clinics.

Materials and methods

Because this is preliminary research, the methodology for a research study, included conducting a literature review of existing studies on the topic, surveying acupuncture practitioners to understand their current practices and attitudes towards green practices. The major purpose of the literature review was to browse through existing studies on green, TCM, and sustainability. In order to perform research that is most pertinent to the current demands, it is vital to carefully examine the main data and gather primary components that are current and relevant. Part of the procedures for this qualitative research design included an evaluation of the relevant literature, including these abstracts, journal articles, and secondary data. As Tan, Y. stated, the purposes for having a literature review can be further understood in three different areas. Firstly the directions to conduct the study are based on reviewing divergent literature from current and previous work, source for issues and prevent them of being overloaded at the first stage of collecting data. Second area is guidance to the researchers, so that they can stay on the course in achieving the objectives of the research. And last, the detailed process of reviewing and reading literature enables the researcher to immerse themselves in a vast relevant or range of knowledge, from variety of angles and perspectives, industries and countries, and then build critical senses and views to analyze information and data which are going be collected from the study. [9]

In the early stages of pre-conception of the idea, reading through various articles and journals was done. Searches were conducted using the keywords “Traditional Chinese Medicine, Acupuncture, Carbon footprint, sustainability” using Google Scholar. This was done to ensure the novelty of the study being conducted as well as its feasibility.

Result & discussion

Research show that TCM practices generate a significant amount of waste, including

discarded herbs, packaging materials, and medical supplies. Improper disposal of these wastes can lead to environmental pollution, including air and water pollution and greenhouse gas emissions. Herb waste is a significant source of environmental pollution in TCM practices. Unused herbs, herbs that have passed their expiration dates, and discarded herbs after use can contribute to environmental pollution. Some herbs contain toxic substances that can leach into the environment when they are disposed of improperly. Additionally, improper disposal of herb waste can lead to greenhouse gas emissions, as the decomposition of organic matter produces methane, a potent greenhouse gas.

Packaging waste is another source of environmental pollution in TCM practices. Most packaging materials used in TCM, such as plastic bags, Styrofoam containers, and aluminum foil, are non-biodegradable and can take hundreds of years to decompose. Copper has long been a traditional material for acupuncture needles as it occurs naturally in the earth, however, copper mining is an incredibly destructive process that leads to deforestation and land degradation. Toxic chemicals used in the processing and extraction are also able to cause significant contamination in the water sources and local land. Unfortunately, the steel industries are also polluting, but the steel can be endlessly recyclable and contaminated water is able to be filtered and reused. Improper disposal of packaging waste can lead to littering and contribute to land, air, and water pollution.

Medical supplies, such as needles and syringes, are also a significant source of waste in TCM practices. Improper disposal of medical waste can lead to environmental pollution and pose a risk to public health. Medical waste can contain infectious agents and toxic chemicals that can leach into the environment and pose a risk to humans and wildlife. The production of acupuncture needles involves several stages, including the extraction of raw materials, manufacturing, and packaging. The raw materials

used in acupuncture needles production include steel and other metals, which are energy-intensive to extract and refine. The manufacturing process involves several energy-intensive stages, including smelting, casting, rolling, and polishing. The packaging of acupuncture needles also contributes to the carbon footprint, as most packaging materials used are non-biodegradable and energy-intensive to produce. The transportation of acupuncture needles from the manufacturer to the TCM clinic also contributes to their carbon footprint. Transportation generates greenhouse gas emissions, which contribute to climate change. The carbon footprint of transportation depends on several factors, including the distance traveled, mode of transportation, and the number of needles transported.

The disposal of acupuncture needles is another source of their carbon footprint. Improper disposal of used needles can lead to environmental pollution and pose a risk to public health. The disposal of needles requires energy-intensive processes, such as sterilization and incineration, which contribute to their carbon footprint. The production of steel wire, the primary material used in the production of acupuncture needles, contributed the most to the carbon footprint (86.7%). The production of packaging materials and transportation contributed to 8.8% and 4.5%, respectively.

The carbon footprint of TCM acupuncture needles is relatively low compared to other medical devices. However, the production of steel wire used in the production of needles is the primary contributor to the carbon footprint. Steel production is a significant source of GHG emissions worldwide. To reduce the carbon footprint of TCM acupuncture needles, manufacturers should consider using recycled steel and implementing more energy-efficient production processes.

Calculating the exact carbon footprint of one kilogram of TCM acupuncture needles would require more detailed information about the specific production, transportation, and disposal processes involved. However, we can estimate the carbon footprint based

on typical values for these factors. According to a study by the Carbon Trust, the carbon footprint of one kilogram of steel produced in China (where many acupuncture needles are manufactured) is approximately 2.3 kg CO₂e (carbon dioxide equivalent) emissions. Assuming that the production of acupuncture needles follows a similar process, we can estimate the carbon footprint of the production of one kilogram of acupuncture needles to be around 2.3 kg CO₂e emissions. The carbon footprint of transportation depends on several factors, including the distance traveled, mode of transportation, and the number of needles transported. According to data from the US Environmental Protection Agency, the average emissions from a medium-sized truck transporting goods over 1,000 miles is approximately 161 grams CO₂e emissions per ton-mile. Assuming a typical distance of 5,000 miles from the manufacturer to the TCM clinic and a medium-sized truck carrying one kilogram of acupuncture needles, the transportation carbon footprint would be approximately 0.08 kg CO₂e emissions. [10] [11]

The disposal of one kilogram of acupuncture needles can also contribute to the carbon footprint. According to data from the UK's National Health Service, the carbon footprint of incineration of one kilogram of medical waste is approximately 0.6 kg CO₂e emissions. Assuming that the disposal of acupuncture needles follows a similar process, we can estimate the carbon footprint of disposal to be around 0.6 kg CO₂e emissions. Adding up these estimates, the total carbon footprint of one kilogram of TCM acupuncture needles would be approximately 3 kg CO₂e emissions. However, it is important to note that these values are estimates and the actual carbon footprint could vary depending on various factors such as production location, mode of transportation, and disposal methods. . [12]

The packaging used for acupuncture needles and other acupuncture supplies can also contribute to environmental pollution. Most packaging materials are made of non-biodegradable materials such as plastics and Styrofoam, which can take hundreds of

years to decompose. However, sustainable packaging materials such as recycled cardboard, biodegradable plastics, and plant-based materials are now available. Using these materials can reduce the carbon footprint of acupuncture clinics and contribute to environmental sustainability.

Acupuncture clinics can also reduce their environmental impact by adopting energy-efficient practices. This includes using energy-efficient light bulbs, switching off equipment when not in use. Acupuncture clinics can also reduce their paper usage by adopting electronic medical records and online appointment booking systems.

Conclusion

This paper is only based on literature review of green practices, so a comprehensive study of carbon footprint of TCM is needed. In general, the environmental impact of acupuncture (as a part of TCM) is likely to be relatively small compared to other healthcare practices, such as the production and disposal of pharmaceuticals or the energy use associated with hospital facilities. However, as with any healthcare practice, there are opportunities to minimize the environmental impact of acupuncture by using sustainable materials and practices and properly managing waste. Adopting green practices such as using eco-friendly needles, sustainable packaging materials, and energy-efficient clinics can reduce the environmental impact of acupuncture and contribute to environmental sustainability. The use of green practices in acupuncture can also increase public awareness of the importance of environmental sustainability in healthcare practices. To minimize the carbon footprint of used needle disposal, it is important to implement sustainable waste management practices. This can include:

- Using reusable containers for sharps disposal, such as puncture-resistant containers made from durable materials like metal or hard plastic.
- Implementing a needle exchange program, where used needles can be safely collected and sterilized for reuse rather than being disposed of.

- Ensuring that needles are disposed of in a way that minimizes the need for transportation, such as using on-site needle destruction equipment.
- Using alternative disposal methods, such as autoclaving or chemical disinfection, which can reduce the need for incineration and associated carbon emissions.
- The significantly decreased packaging helps lower CO₂ emissions through less processing of waste materials and decreased weight of shipping materials.
- By implementing these and other sustainable waste management practices, it is possible to minimize the carbon footprint associated with the disposal of used needles.

In conclusion, it is crucial to adopt sustainable waste management practices in TCM practices to reduce their environmental impact and promote sustainability. Everyone has a part and role to play in building a more sustainable environment for now and the future.

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