

The Effects for Brain stress by SUKI Alternative Therapy

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SUKI 대체의학에 의한 뇌스트레스 감소 효과 연구

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Abstract The purpose of this study is to know the change of brain wave with stress by SUKI pressure alternative therapy. The experiment group was 12 students(male 6/female 6) with complained upper trapezius pain. Calculated the brain wave before and after stimulate the upper trapezius trigger point by SUKI and the stimulate time was 3min each persons(FP2, F3, F4, FP1, T3, T4, P3, P4). the experimet periods was 5times in a weeks with EEG(QEEG-S). The Date collecting used by Telescan(LXE5209). All the data was analyzed with SPSS 22.0 for window program. To compare the differences before and after the point pressure method, a corresponding sample of t-test was performed, and the statistical significance level was $p < .05$. The results was followed. The points of Fp2, F3, F4(* $p < 0.049$, * $p < 0.042$, * $p < 0.019$) of EEG was showed a significant differences but Fp1, T3, T4, P3, P4 points did not showed. The SUKI alternative medicine techniques had a reduced effects for the some kind of brain stress. It is need to continuous research in the future.

Key Words : SUKI, Alternative Medicine, Stress, Trigger Point, Upper Trapezius Muscle,

요약 본 연구의 목적은 대체의학기술인 SUKI(Superficial Using Ki energy Instrument) 점압법을 활용한 특정근육(상부승모근 trigger point) 부분을 자극하여 스트레스를 받은 뇌파의 변화를 알아보고자 실시하였다. 연구방법은 스트레스에 의해 승모근통증을 호소하는 12명의 남녀 대학생을 대상으로 실시하였다. 상부승모근 통증유발점에 SUKI를 사용하기 전후의 특정영역의 뇌파를 측정하였다. SUKI자극시간은 3min 자극한 후 각 부위별로 비교하였으며(FP2, F3, F4, FP1, T3, T4, P3, P4), 실험기간은 총 5회 실시하였다. QEEG-S 뇌파측정기를 이용하였고, 데이터 수집을 위해 Telescan(LXE 5208) 프로그램을 사용하였다. 자료분석은 SPSS 22.0 version을 사용하였고, 점압법 전후 차이를 비교하기 위하여 대응표본 t-검정(paired t-test)을 실시하였으며, 통계학적인 유의수준은 $p < .05$ 로 설정하였다. 연구결과는 다음과 같다. FP2, F3, F4(* $p < 0.049$, * $p < 0.042$, * $p < 0.019$)는 뇌파는 유의하게 나타났고, FP1, T3, T4, P3, P4는 유의하지 않았다. 따라서 SUKI 대체의학기술에 의한 뇌스트레스 감소 효과가 있었다. 추후 SUKI 대체의학의 지속적인 연구가 요청된다.

주제어 : SUKI, 대체의학, 스트레스, 통증유발점, 상부승모근

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1. Introduction

Most of peoples were exposed the multi-stress in their lives as problems with side effects such as mental poverty, identity lacking, confusion of values to adapt the changes with a rapid growth and structural diversity of society[1]. This kinds of chronic and comprehensive responses by this stress accumulation had a negative impacts on physical activity and mental health[2,3]. That gives effect a limiting factor to carry out the normal role as a community and family members. Labour Organization of the United Nations (ILO) was reported "The stress is a newly kinds of global diseases". In Korea has suffered a 95% by stress of the nation's workers, America was reported 80% of the patients suffered relate with the stress disease[4]. Stress is an influence of the environmental factors than the psychological factors, and the health conditions of the peoples which are not better exposure high levels of stress than the low levels of stress [5]. When peoples get stress, the human body has showed an autonomic symptoms[6] that will occurs an increase the heart rate, and muscle tension, anxiety, fear, anger, etc[7]. These symptoms can cause a serious systemic problem. It occupies the highest frequency of the structural impact of the human body and the cause of stress is the tension of the muscles around the neck, including the upper trapezius muscle. This is the cause of headache accompanied by neck and shoulder pain[8]. Neurologically upper trapezius muscle is the innervation of accessory nerves there are two locations of trigger point. Trigger point is to induce pain in the posterior and lateral cervical, occipital lower triangular region, zygomatic area, pains in the teeth, migraines or headaches, dizziness. It could be occurs especially stress[9]. SUKI(Super Using Ki Instruments) therapy is a kind of treatment to healing pain by stimulated the skin with a branch of alternative medicine therapy. SUKI alternative medicine gives to adjust the electrical energy with

negative energy (ying) of the human body regulate the autonomic nervous system and circulating stagnant chi energy[10]. In was reported that SUKI alternative medicine techniques was showed significantly reduced systolic and diastolic blood pressure in experimental research on effects for high blood pressure[11], In SUKI alternative medicine techniques have been reported as effectiveness for pain and relax the muscle tensions in the impact study on pain of tennis elbow patients with muscle tone[12]. In Sin Moon meridian point stimulation by SUKI alternative medicine therapy was reported that the impact Sin Moon meridian point stimulating for the research on EEG valid for positive EEG changes[13]. Others preview showed the effectiveness by SUKI with stimulated meridian point, foot reflex, Shin Soo meridian point etc. This purpose of this study is to give a provide information for the some alternative medicine experts who has the specific well-being natural therapy(SUKI) with a control the superficial chi energy flow in the human body for the upper trapezius muscle trigger points. That is useful for the maintaining body energy balance and offered more energetic and be able to make a happy life with comfortable and a stable life, health liveness for the modern peoples with stress.

2. Theoretical Background

A. SUKI (Superficial Using Ki Energy instrument)

SUKI diameter is a 2mm with a special metal material, 4mm Grip portion diameters, the entirely length is 65mm with cone type(ending region of SUKI). SUKI alternative medicine is to activate the body's external and internal communication of electrical energy and promote recovery of physical and mental health. SUKI was developed by professor Hong Seong Gyun and showed the effect of EEG change by SUKI alternative medicine techniques on foot[14].

SUKI alternative medicine is a kind of oriental energy therapy that could be control the flow of chi energy in the human body and it helps the circulation the blood flow with the functional stability and a harmony and balance of the autonomic nervous system as like a relax therapy. As a tool, that is designed for controlling the electrical energy flowing through the body surface. SUKI technique is too simple without being affected by the location and all the alternative medicine that can be comfortably and effectively promote a group of the human body. SUKI is a differently therapy instruments. That has an advantage it could be accessed easily and securely, such as the public or professionals. In addition, when implemented in conjunction with other manual therapy show a strong synergistic effect. When normally chi energy flow it can be help make a body communication and be free from the disease and can maintain a health condition for human body[15].

2-1. Anatomical Study of the Upper Trapezius Muscle

The upper trapezius muscle innervated from 12th cranial nerve (accessory nerves) and that is sensitive to stress. The upper trapezius muscle is originate from external occipital protubance, inner 1/3 regions of external occipital nuchal ligaments to insertion of outer 1/3 regions of clavicles. The upper trapezius muscle (neck and shoulder) and a sterno-cleido-mastoideus muscle are wrapped in superficial fascia surrounding the entire neck. Therefore, it should be considered to improve the functional region with a sterno-cleido-mastoideus muscle. Specially, when the last angle of rotation of cervical works together and if it has some kind of limitation of last angle that should be treatment both muscles[9].

The platysma fascia that creates a fold in the neck is located on the superficial fascia. And so, when treatment the anterior neck adhesion (hyoid bone movement, hyoid bone treatment, dysphagia), neck fold and face it should consider with these relations.

Fig. 1 shows trapezius trigger point by SUKI alternative therapy.



Fig. 1. SUKI therapy

A body types with a chronic cervical hyper extension occur limited the range of motions of cervical spine with hyper tension on the upper trapezius, splenius muscle, sub occipital muscles. And that makes a chronic headache, blood pressure, cerebrovascular diseases with entrapment of great occipital nerve and artery and it specially caused the stress and uncontrolled body temperature. That is the directly cause. Figure 1 shows the mainly problems at the upper trapezius trigger points are two sites. The trigger point occur the posterior ear pain, temporal pain, posterior lateral of cervical pain, lateral of posterior cervical, mastoid process, temples around, occipital pain, pain of molar, tension headache, and caused the dizziness. The factors of activate to trigger point that cause by the leg length differences, pelvic asymmetry and heni pelvis and short humerus, a shoulder elevation[16].

2-2. Muscle & Fascia Connection

The upper fibers of trapezius is connected functionally with an anterior deltoid fibers originate a third of the clavicle. A subclavius muscle is located a superficial layer of upper trapezius and deep layer of anterior deltoid muscle. And so the shortening of upper trapezius muscle gives effect an anterior deltoid muscle and subclavius muscle (originate clavicle to inserted ribs, its function has a clavicle immobilization and extension of rib cage when breath). It occurs some kind of symptoms related with breath and

movements of clavicle. Also the shortening of anterior deltoid fibers and clavicle region fibers of upper trapezius will cause abnormal movement of shoulder joint and it makes a chronic unstable humerus head in shoulder joint cavity by internal rotation of humerus. The superficial layers of upper trapezius, sternocleidomastoideus connected with platysma fascia, deltoid fascia, pectoralis major fascia are immobilized to lateral septum that will be a facial asymmetry. A prevertebral fascia locating inner upper trapezius muscle and supraspinatus muscle and levator scapula muscle, scalene muscle is connected with rib cage fascia which effects ribs cage. A prevertebral fascia connected with covering the lungs and kidneys fascia focusing with trapezius fascia and when breathe both fascia has a movement together because, all of the muscle fascia connected with each other organs of human body[17].

And so the problems of upper trapezius muscle gives effect limited to mobilization of lungs and kidneys fascia and internal organs and breath. Upper trapezius muscle located 1-5th spinous process, nuchal ligament, an external occipital protuberance. Also it connected with occipitalis, frontalis from occipital bones and that involved the forehead wrinkle, Downward eyelids, changing Injung region and deformation of the nose.

2-3. Posture Consideration

An excessive tension of upper trapezius muscle will be limitation of rib cage and sternocleidoid joint. And more, the limitation of movements of clavicle will be limited ROM of shoulder joints. The limitation of movement of clavicle is effects to limited activities of subclavius muscle, cost coracoid membrane, fascia investing pectoralis, suspensory ligament of axilla, axillary fascia. And so it also considered when an axillary special treatment, chest treatment, frozen shoulder, limited shoulder joint exercises etc[17].

The weakness of one side upper trapezius will seem moved away between a same side acromion process

to a cervical area and tilting head the opposite side and downward shoulder joint. Also, the weakness of both side upper trapezius muscle will seem the acromion process located lower than 1th thorax and the downward shoulder will occur a chronic fatigue of shoulder girdles, and it comes diminished extension of head and neck. The shortening of both upper trapezius will seem the acromion process located upper than 1th thorax and the upper scapula and acromion with a total shoulder girdle region and will be relaxed latissimus dorsi muscle, middle lower trapezius muscle. Also the shortening of both upper trapezius muscle will seem a rounded shoulder conditions with upward arms.

2-4. EEG(Electroencephalogram)

EEG was first attempted by the neural physiologist Hans Berger Germany, it means a potential measured by the electrode signals of the fine brain surface is shown an electrical signal generated in the synthesis of the cranial nerves[18]. That will amplify the brain to record electrical activity in the cerebral cortex nerve cell, the population analyzed the potential longitudinal axis and the horizontal axis indicates time. Brain wave signal is specially changed in accordance with the static periods, at the time of brain activity or brain function measurement. EEG has a brain wave signal with the essential process characteristic of the frequency bands, the characteristics in the time domain, the special characteristics associated with brain function for diagnosing the brain function and disability. Fig. 2 shows EEG.



Fig. 2. EEG

Brain wave has a frequency of 1-60Hz and amplitude of about 10-200µV, brain waves are generated by a change in the electrical discharge of cortical neuronal membrane. Types of brain waves are generally according to the frequency δ waves of 0.1-3Hz, θ waves of 4-7Hz, α wave of 8-13Hz, SMR wave of 12-15Hz, low β waves of 16-20, high β wave of 21-30Hz. EEG δ wave sleep, a very slow time appears in a coma EEG looks at the case of newborns and infants, normal adult sleep. However, even in infancy, the emergence and awakening corresponds to the wave of α in adult and newborn infant δ waves. θ wave is dozing or asleep when a β wave appears, than four times at two times slower reflects a deep meditative state between wake and sleep. It appears more children than adults called border state of perception and dreams. At this time, it also often the creative force looking at the images that accentuated in the past to decorate your fantasy seen as unrealistic and mystery fantastic condition and gives an idea of the difficulties faced for a long time trouble shooting..

3. Materials and Methods

3-1. Test Method

This study subject is a total 12 (female 6, male 6) with chronic neck pain (neck disability index more than 15), but without the medical diagnosis. Table 1.2 shows followed..

Table 1. Characteristics of the study participants

characteristic	n=12
Age (years). mean(SD)	24 (2)
Height (cm). mean(SD)	166 (5)
Weight (kg). mean(SD)	62 (6)
Gender. n male/female	6 (50)

M±SD: Mean ± Standard deviation

The aim of this study was to find the impact of chronic neck pain and stress reduction SUKI stimulation via EEG analysis

SUKI stimulation region is an upper trapezius muscle points. That point is a chronic cervical pain and headaches. All the data was analyzed with SPSS 22.0 for window program.

- 1) Stimulation region: upper trapezius muscle's two trigger point.
- 2) Measurement: before application and 3min after the application therapy.
- 3) Experimental time: performed 5 times in a week interval, according to the technique of the first method.
- 4) Attaching the measuring electrodes for the study: Fp1, Fp2, T3, T4, P3, P4 International 10/20 electrode patch method on the head surface.
- 5) Reference electrode: A1 of the ground electrode was attached to the back ear.
- 6) Measurement for Trigger point 1 (upper trapezius muscle) by EEG.
- 7) Measurement for Trigger Point 2 (upper trapezius muscle) by EEG.
- 8) EEG model: QEEG-8 /Telesca (LXE5208) program for the data collection and analysis.
- 9) Method: measured brain waves.
- 10) EEG measurement site: frontal lobe, temporal lobe, occipital lobe.
- 11) SUKI grip method: by using only thumb, digital 1, 2 were less than 20g.

4. Result

4-1. Test Result

The data processing of the study the measurements of all items, using the SPSS 22.0 for window average (mean: M): was calculated as (standard deviation SD). The whole subject was the Shapiro-Wilk normality. It was showed a validated general characteristics of the subjects which using descriptive statistics. It was carried out paired t- test to compare the difference before and after the point compress technique of SUKI of subjects, statistical significance was set at p <.05. Table 2 shows the

stress level of the brain waves (before and after in research process) are as follows.

Table 2. A compared of stress index between the pre-test and post-test in each area

Brain region	Variab les	Pre- test	Post- test	t	p
Fparit al	Fp1	25.47 ±3.93	23.96 ±2.49	1.915	.082
Fparit al	Fp2	24.33 ±3.95	22.58 ±2.51	2.213	.049*
Front al	F3	23.84 ±4.32	21.98 ±2.82	2.332	.042*
Front al	F4	26.28 ±6.60	21.48 ±2.51	2.757	.019*
Temp oral	T3	26.61 ±5.27	25.13 ±4.79	.645	.532
Temp oral	T4	29.37 ±6.49	27.22 ±5.03	1.120	.287
Pariet al	P3	24.19 ±7.25	23.79 ±7.07	.168	.870
Pariet al	P4	23.66 ±7.67	24.30 ±7.86	-.234	.819

(Mean ± SD) n=12

Fp2 showed a 22.58 ± 2.51 compared to post a significant decrease from 24.33 ± 3.95 in the prior compress technique of SUKI after that before applying for the stress index in the area ($p < 0.05$). F3 in areas that were compared before and after compress technique of SUKI significant decrease from 21.98 ± 2.82 to 23.84 ± 4.32 in the prior post about the stress level ($p < 0.05$). F4 in comparison before and after compress technique of SUKI to stress in the area were significantly reduced to 21.48 ± 2.51 in the prior 2.28 ± 6.60 ($p < 0.05$). In terms compress technique of SUKI were compared before and after the change, Fp2, F3, F4 in the area showed significant differences in the other five areas were no statistically significant differences ($p > 0.05$). Fig. 3, 4 shows followed.

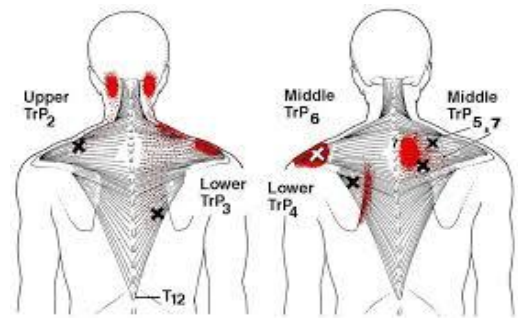


Fig. 3. Upper Trapezius Muscle Trigger Point

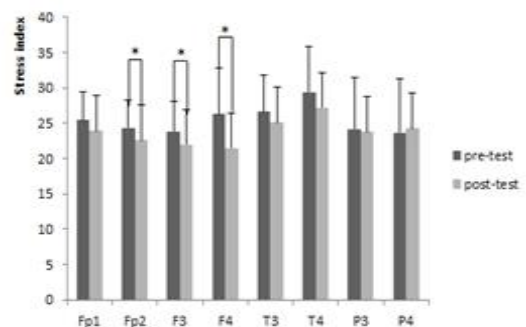


Fig. 4. Comparison of Stress Index Between Pre and Posttest in Each Area

* $p < .05$

5. Discussion and Conclusion

This study was designed for the effectiveness of SUKI alternative medicine therapy to the upper trapezius muscle trigger points pain by stress with "G" Metropolitan "N" university Students (over the neck disability index 15 points with female 6, male 6) of chronic pain in the neck. The purpose of this study is to know the effects of changed brain waves of SUKI alternative medicines (pressure techniques) to stimulate the trigger points of upper trapezius muscle caused by the structural imbalances with stress. The trigger points (No 1, No 2) of upper trapezius muscle is so sensitive from the stress and that is located upper trapezius muscle innervate by 11th accessory nerve of cranial nerves. And so that is a pain occurring muscles to the stress, headache, severe neck pain, shoulder joints, shoulder girdles. An

upper trapezius muscle with a strong tensioning patterns easily showed mainly excessive mental and body postures tensions. It is sensitive the cold and overwork, fatigue which occurs the cold with failed body temperature control, it also evaluate control the temperature for human body. Eastern and western medical approach and techniques for the treatment of muscles hyper tension and stress-related disorders of upper trapezius muscle pain is very diverse. According to the results of [6]. Reported by [7], upper trapezius muscle tonus and shoulder pains with myofascial release therapy and stones therapy groups reduced. In [8] was reported the experiment groups showed a significant difference in the effect for pain relieve of neck & shoulder muscle fascia pain syndromes by Meridian Scraping therapy. And [9] was reported increased the muscle activities of experiment group's muscle activities in the effects for muscle activities with upper trapezius muscle fascia pain by TENS stimulation. In previous studies, it has been widely used such as the alternative therapy interventions for the increasing leverage of healing therapy program. It used mainly intervention ways like this : yoga, myofascial release therapy, pilates, stone therapy, CST, massage, EDT, stretching, EST, meridian scraping therapy etc. These natural remedies are a trend that is increasing the frequency of using is proven. In this study, to know the effect for brain stress by stimulating trigger points 1,2 on upper trapezius muscles using SUKI alternative medicine therapy(affecting the stabilization of the autonomic nerve system through the conducting the energy flow).The result is as follow. Results of comparing the change before and after treatment with SUKI therapy Fp1, Fp2, F3, F4, T3, T4, P3, the P4 8 region of Fp2, F3, F4 region showed a significant difference and others was showed no different. Over the results of the present study findings and research as a linear, a various techniques and tools can be seen that it is being used in a variety of ways for effective healthcare. Therefore, the study suggests that require

the use of tools such SUKI in order to improve function through the muscles and fascia associated pain and stress reduction has the advantage that they can easily and securely access public science professionals. This research has a limitation with respect to generalization on the findings to all brain stress.

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