MODERN DIAGNOSTIC PROCEDURES of ACUPUNCTURE

MEASURED ELECTRICAL PHENOMENON

A COMPARISON STUDY of ELECTROACUPUNCTURE ACCORDING TO VOLL ( EAV )

AND RYODORAKU

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AUGUST 1991
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ABSTRACT

The purpose of this study was to compare two modern diagnostic electroacupuncture procedures: Electroacupuncture According To Voll (EAV) and Ryodoraku. The acupuncture points, frequencies and voltages of each were compared. EAV and Ryodoraku were designed to measure the body's energy and balance this energy in order to maintain good health. Both attempt to verify, electrically, the existence of acupuncture points and meridians.

Key Indexing Terms: acupuncture, EAV, meridians, Ryodoraku
CHAPTER 1: THE PROBLEM

INTRODUCTION

Classical Chinese acupuncture states that there is an energy force running through the body, referred to as "Qi" (chi) which travels along channels known as meridians. This energy controls the functioning of the main organs and systems of the body and the Chinese consider good health to be a state of equilibrium and harmony of Qi within the body. Modern electrical equipment enables acupuncture points and meridians to be located by the electrical potential of the skin. There is lowered resistance of the skin at acupuncture points than in the tissue surrounding. Electroacupuncture According To Voll (EAV) and Ryodoraku are instruments designed for both point location and therapy. The values yielded from measurements taken at certain acupuncture points reveal the energetic state of that point and whether they need to be charged or discharged. EAV and Ryodoraku are as effective as traditional needling, however, requiring less time.

The aim of this study is to compare the acupuncture points, frequency and voltage used for diagnosis and treatment in EAV and Ryodoraku. I hope this study will provide the practitioner with a focal paper which demonstrates the similarities and differences of EAV and Ryodoraku. Specific diagnostic and therapeutic uses will not be discussed. The paper concludes with suggestions for additional research and comments on EAV and Ryodoraku.
BACKGROUND

Acupuncture is one of the oldest healing arts and has been in existence for nearly four thousand years, though its origins are lost in antiquity. Developed by the Chinese, acupuncture notes a relationship between certain diseases and body organs with specific points on the body. It deals with the impairment of body functions as opposed to actual lesions. There is an increased sensitivity of certain areas on the skin when a body organ or function is impaired. These areas of hypersensitivity follow a definitive topographical pattern which is used for the diagnosis of organ involvement in a variety of disorders. A line was drawn linking a series of points associated with a particular organ and the function of the organs are controlled by a circuit of energies. These energies circulate along channels termed meridians. Meridians not only function as lines connecting a series of points on the skin which become sensitive in the presence of organic or functional disorders, but they also function as actual energy pathways. The Chinese believe that the body is endowed with an energy which circulates throughout the body, referred to as "Qi" (chi). Acupuncture regulates the flow of Qi through the meridians and organs and removes blockages. Its primary function is to directly affect the energy level and thus the function of the internal organs by either depressing or stimulating the action of the organ. Acupuncture therapies are carried out by inserting needles into specific acupuncture points on the body to correct any imbalance which may predicate the body to illness or disease.
There is sufficient evidence available to support a scientific explanation for the mechanism of acupuncture's effects. Western medicine remains skeptical because they are bound to their constraints of exact scientific methodology. Modern electrical equipment enables acupuncture points to be located by measuring the electrical potential of the skin at these points.

Electroacupuncture began fifty years ago in China. It is a term used for all procedures using modern electronics based on measurements and therapy derived from classical acupuncture. An electrical device is connected to the needles and a current is then run through for further therapeutic effects. The term Electroacupuncture was first coined by Dr. Roger de la Fuye in his book entitled, Treatise on Acupuncture. He connected an electrical therapeutic instrument to the needles resulting in shortened treatment time. The electrical current was emitted from a high frequency diathermy machine. Electroacupuncture uses modern electronics for measurements or therapy of acupuncture points. What is now employed is low frequency currents that are connected to the needles and thus impart an additional therapeutic effect to the needles. Electroacupuncture theory states that the impaired function of organ or body system is identifiable electronically on the surface of the body.
STATEMENT of the PROBLEM

There is a diverse amount of material written on Electroacupuncture According To Voll (EAV), however few articles were written on Ryodoraku. Consequently, this makes it difficult to adequately compare the mechanics of EAV and Ryodoraku.

PURPOSE of the STUDY

The purpose of this study is to evaluate the similarities and differences of the acupuncture points, frequencies and voltages used in EAV and Ryodoraku for diagnosis and treatment. Though to a large extent these two modern electroacupuncture therapies are similar, their approach to treatment differs.

SCOPE and LIMITATIONS

The author wishes to acknowledge the following limitation of this study. Due to the scope of this study, the specific diagnostic and therapeutic uses of EAV and Ryodoraku will not be discussed.
CHAPTER 2: METHODOLOGY

OVERVIEW of the CHAPTER

Chapter 2 will describe the methodological approach and literature search procedures used to accumulate the documents necessary for this study.

DESCRIPTION of the METHODOLOGICAL APPROACH

This study will compare two modern electroacupuncture techniques; Electroacupuncture According To Voll (EAV) and Ryodoraku using the current literature available.

The literature search for this comparative study began with a computerized search at the Logan College library utilizing the Medline Computer Network. The subject heading of electroacupuncture was entered. The Medline generated four hundred and thirty six documents. Articles written in the english language only were requested which resulted in one hundred and eighty two documents for review. The titles of the resulting one hundred and eighty two documents were reviewed and twenty four abstracts were obtained based upon the title's relevance to EAV and Ryodoraku. After reviewing the abstacts, none were chosen for further review due to the content dealt mostly with treatment of conditions rather than descriptions of the mechanics of EAV and Ryodoraku.
A manual search for pertinent material was achieved in the Logan College library and the private library of Bert T. Hanicke, D.C. By reviewing the index of textbooks on acupuncture and The American Journal of Acupuncture this author was able to find pertinent material on the mechanics of EAV. The information obtained on Ryodoraku was limited to textbooks.
CHAPTER 3: COMPARATIVE REVIEW

OVERVIEW of the CHAPTER

Chapter 3 will review the current literature available on the mechanics of Electroacupuncture According To Voll (EAV) and Ryodoraku. In this chapter the reader will be acquainted with the acupuncture points, currents and frequencies used in EAV and Ryodoraku for diagnosis and treatment.

HISTORICAL BACKGROUND

The discussion of EAV and Ryodoraku would not be complete if mention of their developmental history were not discussed. EAV and Ryodoraku developed at the same time but from two cultures, a world apart.

In 1953, a German medical doctor, Dr. Reinhold Voll developed Electroacupuncture According To Voll (EAV). In Kyoto, Japan, in 1950, a physician named Dr. Yoshio Nakatani developed Ryodoraku. He is believed to be the first to discover and measure the electrical resistance over acupuncture points.

Dr. Voll was not only a medical doctor but was also an expert in the field of classical Chinese acupuncture. He set out to determine if the electrical measurements of acupuncture along a meridian had any relation to the organ for which the meridian was named. The modality used to make these measurements was then known as the Diatherapuncteur, developed by Dr. Voll and an engineer, Dr. Fritz Werner. The instrument was a vacuum tube which charged the acupuncture point with a direct
current of 10 to 12 microamperes at approximately 1 to 1.25 volts. This gave a measurement of the skin over the acupuncture point thus rendering it electrically measurable. The instrument was capable of delivering current to the acupuncture point. Based on these theories, Dr. Voll proposed that each acupuncture point has an electrical potential which can be accurately measured. The Diatherapuncteur is now known as the Dermatron. The Dermatron yields values which manifest the condition of the organ or body system being measured.

Dr. Nakatani found points of low electrical resistance which ran throughout the body. He called these points Ryodoten or Electro Permeable Points (EPP) which meant hyper-electroconductive points. The lines on which the Ryodoten were located, he named Ryodoraku. These are identical to the classical acupuncture meridians. Nakatani's theory was that the balancing of the electrical energy throughout the body was mediated by the autonomic nervous system. The Ryodoraku instrument uses a constant voltage and a variable current to measure the electrical resistance of an acupuncture point.

The history shows that both Dr. Nakatani and Dr. Voll were attempting to electrically varify the existence of acupuncture points and meridians.

COMPARISON of EAV and RYODORAKU

According to Dr. Voll each acupuncture point has an electrical potential which can be accurately measured by the Dermatron. The electrical resistance of an acupuncture point can reflect the pathology of the organ or body system being evaluated. Dr. Voll established that
specific anatomical structures or physiological functions in the body have direct relationships to acupuncture points. The body is a system of energies that react to any applied current and as such the electrical potential of acupuncture points can be precisely measured.

The Dermatron is a simple voltmeter which delivers approximately 10 to 12 microamperes of direct current at 1 to 1.25 volts. The scale of the voltmeter measures the electromotive force of the acupuncture point and this scale is calibrated from 0 to 100. The deflections noted on the scale indicate the state of the organ or body system being evaluated. The deflection will only show up if the acupuncture point is precisely measured by placing the probe in the center of the point. This infers that these points have a differing electrical potential than the surrounding skin. The Dermatron gives an exact visual reading of the fundamental state of the organ or body system which is reflected by the acupuncture point being measured. "The basic purpose of EAV measurements is to determine the 'peak reading'." Dr. Voll established certain parameters on interpreting the readings from the Dermatron. An important and fundamental part of the EAV measurements is known as an indicator drop. It is an indication that the organ or body system being evaluated is in an unhealthy state. A reading of fifty is regarded as a normal ideal value for any acupuncture point. This value is expressing the normal electromotive force of the acupuncture point which is approximately .87 volts. If the acupuncture point being measured is unhealthy, the electromotive force will decrease because the organ or body system being measured cannot supply the normal energy
to the acupuncture point and will read as an indicator drop. The indicator drop may take 1 to 5 seconds to begin depending on the energy that is stored in the acupuncture point being measured and it may take 5 to 40 seconds to produce any indicator drop and reach a stable value. The diagnostic inferences from indicator drops are as follows:  
*75 to 85 indicates an irritation, a pre-inflammatory condition of part of an organ.  
*85 and above indicates a progressively more severe degree of inflammation.  
The higher the reading the more inflammation there is present.  
*40 to 50 indicates an initial degree of degeneration.  
*40 to below indicates a progressively more serious degree of degeneration.  
*15 or below is incompatible with life.  
*80 or above with a drop ending at 60 indicates inflammation.  
*80 to 100 with a drop between 40 - 50 indicates a more serious inflammation.  
*65 or below with a drop to 20 indicates a serious degree of degeneration.  
The frequency designed to therapeutically stimulate acupuncture points ranges from .8 to 10 hertz and will either charge or discharge them accordingly. The reason for the variable frequency is that the acupuncture point has a resonant frequency between 0 to 10. The frequency coming in from the Dermatron will harmonize with the frequency of the acupuncture point.
There are over eight hundred measurement points in EAV diagnosis. Most of the major systems are represented on the hands and feet and there are also body points that are more specific. To obtain a reading, the procedure involves challenging an acupuncture point with a probe. The problem which arises when trying to obtain an accurate reading is the skin resistance. The probe must be moistened and a considerable amount of pressure must be put on the skin to acquire a valid. To facilitate the measurement the patient holds in one hand a brass cylinder electrode and the physician applies the current to the acupuncture point to be measured using a brass probe stylus 3mm in diameter. A reading will be seen on the voltmeter of the Dermatron and enables the physician to determine the functional status of the organ or body system reflected by the point being measured.

EAV diagnosis allows for early diagnosis and treatment of any disturbances in the electrical potential of an organ or body system being evaluated. EAV also allows the practitioner to monitor the patient's progress to determine if the therapy is beneficial and when to terminate the therapy when the readings show that the disturbance is no longer present. EAV permits rapid and comprehensive diagnosis in terms of the patient's energetic and physiological status.

Ryodoraku therapy is an electro-stimulating technique for the diagnosis and treatment of the energies within the body. Dr. Nakatani theorized that the balancing of the electrical energies of the body through the autonomic nervous system and a balance of it affects any organs whose energy is unstable through a cutaneo-visceral reflex. A stimulation occurs at the sensory nerves and passes along the motor and autonomic nerves which results in a reflex back at the site of the
acupuncture point. In Ryodoraku the autonomic nervous system is referred to as the life nerves because it controls so many functions of the body and the cause of disease in any organ occurs via the autonomic nerves. Thus, regulating it renders all organs cured from disease. When an internal is not functioning properly it is reflected on the surface of the body.

There are two types of acupuncture points used for Ryodoraku diagnosis and treatment: Ryodoten or Electro Permeable Points (EPPs) and Reactive Electro Permeable Points (REPPs). Ryodotens are points of good conductivity or low electrical resistance on the skin which run along the Ryodoraku (meridians). REPPs are points of heightened autonomic nervous system activity. REPPs are, in most cases located in the area surrounding the patient's complaint and as such are the points of treatment for the autonomic nervous system.

The Ryodoraku machine is used primarily to find EPPs and REPPs. The device uses a variable current and a constant voltage. To measure either EPPs or REPPs, a moistened electrode 1cm in diameter is used while the patient holds an electrode in one hand. EPPs are located when using 21 volts and REPPs at 12 volts, to measure the electrical characteristics of the skin at the points. A current of 200 microamperes is used when Ryodoraku measurements are taken. The difference in the readings between EPPs or REPPs and the surrounding tissue is approximately 20 to 50 microamperes. A steady pressure of 3 grams should be applied to the stylus to obtain an accurate measurement and the area of complaint should be searched only once because the electrical
properties of the skin will change due to the current being applied. Ryodoraku therapy uses both EPPs and REPPs as local points for treatment of the patient's complaint. There are points on the hands and feet that are electrically measurable and these points are representative of the Ryodoraku (meridians). These points are located around the narrowest part of the wrist and various points on the foot.

Ryodoraku treatment consists of two methods. The first being a localized treatment of the REPPs around the patient's area of complaint. This method is known as the localized autonomic nerve regulatory therapy. A dramatic change in the patient's condition may be seen due to the normalization of the autonomic nervous system. The second phase of treatment is referred to as the general regulatory treatment (GRR) of the body's entire sympathetic nerves. In cases of chronic conditions the GRR is used. Ryodoraku treatment is very similar to classical acupuncture in that the points located are stimulated or sedated with needles. A current is connected to the needles by touching the probe, used for locating the points, to the side of the needle. The intensity of stimulation is approximately 200 microamperes at 12 volts for a duration of 7 to 10 seconds. The intensity should be regulated by what the patient feels.

Ryodoraku therapy is based on classical acupuncture ideals and it is an electrical regulatory diagnostic and therapeutic method for balancing the autonomic nervous system. It has the most rapid effects on pain control.
DISCUSSION

Modern electroacupuncture devices such as EAV and Ryodoraku are valuable tools in early diagnosis of pathological conditions. EAV and Ryodoraku give the practitioner the opportunity to carry out comprehensive diagnoses of their patients. However there are some weaknesses in each device which will be discussed.

The EAV Dermatron is a valuable tool for the practitioner but if he or she does not know how to properly use it then their results will not be accurate. A false indicator drop will show up if there is not enough pressure placed on the stylus or if it is not wet. A slip of the stylus can create a false rise in the indicator dial which is just an artifact.

The Ryodoraku instrument also has its weaknesses. The stylus is 1cm in diameter which covers a greater surface area allowing for inaccurate point location. The therapy, once points are located with the Ryodoraku instrument involves traditional chinese needling which some patients may dislike.

EAV and Ryodoraku are alternatives to health care in modern medicine.

RECOMMENDATIONS

Additional research needs to be accomplished on specific diagnostic and therapeutic uses of EAV and Ryodoraku. The limitations of each device needs to be researched and their findings substantiated.
REFERENCES


