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Biomedical System Diagnostics by Pulse Quick Check (PQC) and Electro-Acupuncture (to Dr. Reinhold Voll - EAV)

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An integrated use of two measurement methods can detect medically diagnosable health conditions. The combination of PQC and EAV give information about the current individual conditioned health-regulation of the patient. This combination uses the position of so-called wholeness in life. The point of view of sustainability is addressed on meridians. Findings result is a functional assessment of the life energy QI as to TCM.

Scientists understand life and the environment as interactive relations. They focused biological, psychological and social health problems. Practitioners require diagnostic investigations by combining physical examination with help of apparatus solutions. For the classification of health variations or even diseases there is a need of data for creating parameters of identification characteristics. These include laboratory results, further enhanced by illustrations from imaging apparatuses.

From this point of view it is required that it is applicable to define semiotics of diseases from a large number of patients. But we have to solve the individual problems of our patients day by day through clear physical and chemical reasons of effectiveness. This assumes a general standardization of benchmarks and the understanding of their activity in the organism.⁴

Regulatory Medicine brings additional insights into pathological events, but with the need of valid data. The combination of different measurement procedures very often do not lead to the same diagnostically interpretations. Therefore on one hand it is necessary to look for overarching measurement techniques. On the other hand it seems to be important that professionals use basic knowledge of the application methods which they combine. It is therefore important to choose methods that are able to confirm regulation medical phenomena both multidimensional and non-invasive.

Common measurement techniques mainly include synchronous recording of vital signs (pulse, blood pressure, body temperature and respiratory rate). Besides this, various percutaneous, in the process and outcome optically performing measurement methods are used. This also applies first to the volume fluctuation measurement and secondly the physically enhanced approach to electro-acupuncture.

Peripheral circulatory disorders are main risk factors for major non-communicable diseases. (TÜRPEL & SPRANGER 2016) Until the 1940s the diagnostic evaluation of them were linked to the interpretation of pain symptoms. Today and in the future it will be necessary, to realize differential diagnoses earliest with all possible medical methods from conventional and complementary medicine.

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Puls-Quick Check System (PQC) History and improvement

Accurate measurement of blood pressure is essential to classify individuals, to ascertain blood pressure-related risk, and to guide management. The technique (with a trained observer and a sphygmomanometer) continues to be the method of choice for measurement in the office. The first indirect arterial foot pressure was published by the German physiologist *Karl von Vierordt (1818-1884)*. Later on the "Sphygmograph" functionally was updated by *Scipione Riva-Rocci (1863-1937)* and his "RR mercury sphygmomanometer". Another improvement came from *Heinrich Jakob von Recklinghausen (1867-1942)*, whose wider cuff allowed an oscillometric dissipation. The pulse oscillography was presented by *Berndt 1906*. *Gesenius and Keller* refined the technique in 1949 with bilateral simultaneous measurements on mechanical receptors in the pressure cuffs. Their Oscilloscope to sphygmographic investigation was docked to the sides, compared to the extremities and could be used for the diagnosis of thromboangiitis and coarctation. The measurement technique was based on simultaneous measurement on finger and toe-pulse, analogue with the optional measurement of bondage and wrist. The method has been extended from the 'Thorakographie' out by postoperative measurements of blood flow to the extremities. The clinical application focused on prior checks and by vascular dilatation. (HILDEBRANDT et al 1953)

Angiologists have developed the pulse oscillography for non-invasive clinical diagnostics further angiological syndromes. Theoretical foundations have been focused by the research group led by *Hildebrandt* in the 1960s rhythmic periodicities and their impact on the energy processes. (HILDEBRANDT et al 1965) He managed to exhibit regularities in dynamic bodywork, both in relations between the physically detectable mechanical energy and the activation of the energy transport systems of the organism and the heartbeat rate. (EHNI et al 1961)

Practice tests were reported by several scientists, using the pulse oscillography as to an outpatient usable method. They then presented first comparisons of these conventional method with the theoretical contents of complementary methods. (BEISCH 1980)

Frequencies of cardiac and respiratory activity under certain conditions have systematic settings (ratio four to one). When load increases, the number of breaths decrease upon relaxation. Reciprocal influences of heart and respiratory rates affect the vegetative starting position. About this dependency relationships can be explained as to various vegetative interactions, such as various types of anxiety. High heart rate, coupled with anxiety, together with hyperventilation lead to panic attacks.

Basically, the pulse oscillography, ensured with its calibrated records, reproduces and thus measure biological rhythm changes. It is therefore suitable for documenting induced regulation changes in the autonomic nervous system. It is suitable to combine these measurements with electro-acupuncture. Controls in the combination of the two complementary apparatusive methods allow special interpretations. (HOMMEL 2006)

Electro-Acupuncture according to Dr. Voll (EAV) - History and improvement

Electro-acupuncture includes original electrical stimulation of acupuncture needles pricked. (ROUSSEAU & FUYE 1936) *Fuye* extended the method to an electro-physical diagnostic and therapeutic procedure, taking into account different electrical behavior of acupuncture points to their surroundings.

Special investigations were carried out by measurements on resected skin-pieces. They showed that a biological amplitude is measurable only in the course of the meridians on the body surface and on the corresponding acupuncture points. He participated in patients (with clinically confirmed diagnosis) on specific acupuncture points electrical resistance measurements.

Comparison of these values with reference groups (clinically healthy) confirmed the measured potential differences between the acupuncture points and the acupuncture point free environment. (NIBOYET et al 1950)

Other investigations led to the construction of the instrument "KuF universal Diapuncteur". This made it possible to locate an acupuncture point, to measure, to provoke with electrical pulses and to influence him through targeted low current pulses (called relaxation oscillations) vegetatively. Because of the importance of electricity for the diagnosis and therapy he described the process as "EAV". (RONDÉ 1998)

This is of importance because the great merit of *Dr. Reinhard Voll* was "to interpret that meridians lead the bioelectrical energy from the internal organs to the periphery by their energy supply, and can be measured there." (VOLL 1953, WERNER & VOLL 1988)

As to today's development of equipment, the technology of modern electronics uses uniform criteria. But since there are various gauges, it was important to create uniform standards for securing the identical measurement behavior for the different devices.

Investigations use an average measurement voltage of 900 mV at a maximum measuring voltage of 1.400mV. The measuring current is between 5,5µA and 11,25µA. During the measurement process, the ohmic resistance varies according to the state of the biological system to be measured between 0 and 600kΩ.

Hole-body-volume fluctuation measurements with the Pulse Quick Check System in combination with Electro-Acupuncture

Complementary medical examination methods allow to look at medical issues with a wider viewing angle. The mechanical pneumatic use of pulse oscillography on one hand and the electro-physical EAV according to *Dr. Voll* on the other hand give information. In this way it is possible, views of the Traditional Chinese Medicine (TCM-therapy) to extend the pulse diagnostics, in particular, as to combine with the acupuncture.

For this reason the meridian system is of fundamental importance. The closed energy cycle consists of energy channels, with primary and secondary meridians. Adverse meridians are divided into further groups of meridians, bilaterally in the longitudinal direction of the body. Within the meridians the life energy Qi circulates. In its course, the energy potential at the head is at maximum, averaged over the chest minimal and the arms and legs.

The tests with pulse oscillography depend on the twelve main meridians, over the main axes of the arms and legs, a special energy density is there to "Antiques points".

The principal meridian axis is connecting two main meridians with the same energy quality (Yin-Yin or Yang-Yang). Thereafter, the twelve main meridians are divided into six main Yin meridians, each with a storage organ, and in six Yang main meridians, are connected with one hollow organ. (KAMPIK 1997)

Basically every Yin organ has a Yang-partner of the same element. From this connection, in each case a main meridian pair is created as functional coupling of a storage organ with the power quality Yin and a hollow organ with the power quality Yang. Here Meridian pairs of hands and feet can be distinguished.

The coupled meridians are approximately parallel to the limbs, but according to the Yin-Yang polarity opposite. Due to their pair connections always make two principal meridian pairs a common closed energy cycle.

The electrical conductivities of tissue sections are examined in relation to their surroundings. This leads to electrically significant districts, anatomically precisely localized skin areas, corresponding to the classical acupuncture points. (HEINE 2007) The logic of TCM in the western world goes back to *Heine* and his scientific investigations. (HEINE 1988) As important part of its anatomical and micro-morphological studies he has reported the respect to the allocation of acupuncture points to meridians. (HEINE 1990, 1996) He formulated that EAV can be of good use by its activity in electro-physical measurement on acupuncture points. (HEINE & KOENIG 1994) In the scientific and educational field of biological medicine this brilliant author gave many important impulses. His textbooks are used at many universities in Europe. (HEINE 2007) He even has dealt with risk factors of non-communicable diseases (critical consumption of tobacco products), and described resulting immune damages. (HEINE & SPRANGER 1995)

Reproducible measurements reveal pathological processes in the prodromal stage in the body before manifesting a possible disease. Corresponding electromagnetic oscillations of existing diseases can be identified in more detail as well as medicines (usually homeopathic substances). Environmental influences are tested for their individual effect on the patient. If necessary, the treatment can administered via the EAV device targeted locally. Weak electric current pulses can be added. ⁵

The pulse oscillography is used for sphygmographic investigation. By microprocessor controlled electronic measuring technology, an automated process is guaranteed by standardized criteria. The recording is done via four on each side of the body symmetrically placed blood pressure cuffs (each two proximal and distal). Two of these collars are considerably wider to cover two physiologically particularly meaningful areas. Thus, systematic measurements of volume fluctuations of a defined vessel section are made over a total of eight fixed positions (ten seconds per pressure stage, 190 + 140 + 90mm Hg per pair cuff). ⁶

The measurement produces digitized information through a special control software. The computer screen demonstrates pulse curves. During recording, the proximal dissipation of the applied cuffs gives an overview of chronic processes of the organ system. The distal derivative indicates corresponding peripheral effects. The measurement results are reproducible. The measurements allow therapeutic follow-up.

Statement - Complementary Medicine

The interpretation of measurements of both, PQC and EAV, need the meridian and acupuncture system of TCM and the functional organ circles with its interrelations with the whole organism and its environment. In living organisms, these units are compliant with open systems. On the other side they are in interactive relationships with their sub-systems, according to fractal principles of self-similarity. Following their own pattern, the unpredictability of chronic diseases as consequences can be discontinuous in medicine. The regulation capacity asks for informational transfer. By this, the interpretation of measurements has to regard the detection and correction mechanisms of the whole body. (HANZL (1995)

This is important for the identification of arterial disease (femoral and peripheral type), venous postthrombotic syndrome and deep varices, interstitial lung disease, edema, pain assignments, neurological disorders such as paralysis, polyneuropathy, stroke rehabilitation, gynecological indications such as chronic inflammation, fluid retention during pregnancy, functional assignments of innervation of skin, muscle and bone sections.

⁵ Pos. Paper Dtsch Medizinische Ges. Elektroakupunktur nach Voll (DMGEAV)

⁶ Inf BioEnergetic System-Diagnosis/-Therapy (BESDT)

The energy state of meridians during all measurements are recorded with the electronic equipment. Since no stimulus pulse during the measurement occurs on regulatory systems, proof of efficacy as well as mechanical energy manipulative procedures are registered. Acupuncture theory assume that the body is traversed by a variety of meridians. Meridian pairs and energy layers (including the yin and yang principle) reprint causal relationships for the presence of acute or chronic diseases.

Regulatory medicine integrates both, conventional and complimentary medicine. By this interpretation of diagnostics and therapy, the combination of PQC and EAV brings practical results. With the concentration on meridians it brings better understanding of energy in life.

Conclusion

Both, the Pulse-Quick-Check (PQC) and the Electro-Acupuncture (EAV) are self-complementary medicine systems with different application purpose and statements. If necessary, they can be combined for diagnostic protection.

The PQC is a further development of conventional blood pressure measurement. Standardized measurements at different body sites define qualities of the autonomic nervous system. These qualities are recognized and interpreted on the condition of the vegetative ground system. Thus, possible results from dysregulation of dysfunction of organs and organ systems are represented by measurement. The PQC is a purely diagnostic method.

The EAV assumes anatomically defined areas of skin before electro-physical measurements. By this measurement, the current state and its regulatory dynamics of systems and subsystems of the human organism can be detected. Disruptions and blockades of autonomous control mechanisms are measurable. The aim is to find causal disease factors and restoring the physiological regulation of the organism.

The EAV is a diagnostic and therapeutic method simultaneously.

Cooperation from previous PQC measurements and EAV focus the search and locate problems in the human body. After local and systemic therapy EAV may confirm the therapeutic effects through final PQC measurements.

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