

The Development of Acupuncture in Western Medicine

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Although individual reports on acupuncture had already reached Europe by the end of the 17th century (for the French consul Soulie de Morant brought the complete works to France) only a small group of physicians interested themselves with the treatment. It was not until after the II World War that acupuncture, under the patronage of Roger de la Fuye, began to spread. At that stage, the classical teachings were followed. The taking of the pulse was of major importance in determining both the choice of points and the metal of the needles used (gold for tonification, silver for sedation). Scientific research, in its present-day form, was not carried out, most acupuncturists having come from the field of homeopathy — both methods were usually combined in treatment. Soon, however, doctors in Central and Eastern Europe, where homeopathy was not as widespread as in France, formed groups to attempt to study and explain the undeniable effect of acupuncture in conventional medical concepts. Slowly a form of research developed which was based on the normal pathophysiology. This presented us with new ways of interpreting concepts such as energy (Chi), Yang, Yin and the meridians. But, surely, the most important concept seemed to be the points themselves.

We therefore tried to proceed systematically and used the terms: point of stimulation, propagation of stimulus, and site of action in the course of the illness.

Point of Stimulation

(1) The points stand out as areas with reduced electrical resistance which can be measured in relation to the adjoining skin by means of special instruments.

(2) Currents applied to these points show different electrical curves in comparison to neighbouring skin of the same structure.

(3) KELLNER differentiates two groups of points based on histological findings in serial sections of skin punches:

- (a) Receptor; i.e. a significant accumulation of the familiar components of the skin (e.g. Krause's end bulbs etc) — but there are variations from point to point.
- (b) Effector; i.e. an accumulation of smooth muscle cells which always have a direct relationship to the lymph vessels.

These two groups may also be differentiated by biochemical analysis, as has been demonstrated by studies on the serotonin production (BIRKMAYER, RIEDERER et al.).

(4) The points are usually clearly discernable on infra-red photographs.

(5) Simple palpation of the points usually reveals a slight hardening. The diameter of the point is dependent on its therapeutic importance and is between 4 and 9mm.

In other words, there is no specific substrate for acupuncture. This form of treatment employs the structures normally present in skin. This is about all we know about the points to date.

Much more research has been undertaken on the propagation of the stimulus. We have obtained valuable information from the field of neurophysiology. It has been known for quite some time that a nociceptive stimulation at the synapse between the first and second neurone may be influenced. The same is the case in the thalamus and its nuclei. We know too little about the processes in the limbic system and cortex. Descending stimuli are also mitigated. We may therefore state today that acupuncture has a definite effect on the nervous system, *sui generis*.

We know that acupuncture can influence various neurotransmitters — not only serotonin (as mentioned above) — but also many more (KROTLINGER), with the exception of calcium. The endorphins and enkephalins are of particular importance to acupuncture. (SNYDER, LIEBESKIND, POMERANZ et al) β -endorphin has a marked analgesic component and probably plays the main role. Many studies have been carried out on this. It is clear that these substances are also released during every form of stress, but with acupuncture a very specific and easy release seems to take place. Every form of acupuncture, including the special forms such as ear, scalp, nose, hand or foot acupuncture, and various types of stimulation, such as needle insertion, laser, ultra-sound, moxa (i.e. localised warming), cold, massage of the point which is falsely called acupressure, bring about a change in the biochemical and/or biophysical processes.

A change also takes place in the peripheral blood circulation. This is easily demonstrated by the appearance of red areolae around the inserted needles and by a 1-2°C increase in the temperature of the skin around the needle as well as in the target area. Chinese capillaroscopic studies confirm these observations. Thus acupuncture has a definite effect on the peripheral blood circulation, which was originally postulated by KELLNER. KAADA's proof of the effect of acupuncture on the microcirculation has been of great importance, if not the most important study to date. A significant increase of the VIP substances (vasoactive intestinal polypeptides) which regulate the microcirculation occurs. These polypeptides seem to be responsible for the propagation of the feeling of warmth which spreads along the limbs, quite often spreading through the whole organism. The classical teachings considered this phenomenon as the propagation of the energy, Chi, via the meridians. This doesn't appear quite correct to me, for it is said to be the same Chi which is released by deep needle insertion and which sets off a

sensation similar to an electrical shock. However, the latter reaction is clearly the result of touching the perineurium, so the two forms surely have nothing in common.

We find a further post-acupuncture effect especially in disorders of the motor system. Previously tense muscles relax immediately upon needle insertion into the correct points. The turgor of the connective tissue also decreases. This is not only palpable but usually also visible. We may therefore assume that this, together with the changes in the circulation, is essentially responsible for the effect acupuncture has on the locomotor apparatus. These cases make up about one-third of all acupuncture patients. In these conditions too the effect occurs not only in the region of needle insertion but also quite often in the target area far from the stimulated point.

I would like to comment briefly on the so-called classical teachings which are still followed by some schools in Europe, despite a much smaller following in present-day China. It is clear that in ancient times there were no sciences as we know them today. Therefore, Chinese philosophy was taken as the basis. This philosophy described a 'life energy' *Ts'i* or *Chi* which is present in two parts, namely *Yin* (female, dark, parasympathetic, cholinergic or rather hypofunction) and *Yang* (male, bright, sympathetic, adrenergic or rather hyper-function). Health was defined as a balanced yet labile equilibrium of both these factors (rather modern!). Hence *Yang* illnesses (those resulting from a deficit or hypofunction) were differentiated. It was thought at the time that the 'life energy, *Chi*' flowed through certain channels (meridians) whose course was exactly laid down. This circulation of energy was also subjected to the circadian rhythms. We still retain the concept of the meridians, because it has proven to be of use in daily practice and also because it facilitates finding the points. Practical acupuncture work has shown these lines to be of importance in therapy.

There has, however, been no histological proof of the meridians to date. The electrical resistance of the skin along their course is also reduced but to a lesser degree than at the points. At present, it is assumed that the meridians are either projections of the cerebrum on the surface of the body or that they are a common borderline between dermatome, myotome and perspiration in distinct segments (hidrotome). This seems of importance to me, on the basis of the fact that the meridians are arranged bilaterally and that it has been shown that treatment, for example, of a unilateral frozen shoulder is far more successful if, for the first therapy session, acupuncture is only carried out on the contralateral side.

Finally a comment on various illnesses which the Vienna School of Acupuncture considers on the basis of normal pathophysiology. For example: nearly one third of our cases suffer from headache or migraine. An exact diagnosis must be made before treatment is commenced. In our cases we also use additional parameters. In migraine or vasomotor headache, acupuncture is able to influence Phase I (vasoconstriction) and can, in some people prevent a transition to Phase II (vasodilation) or Phase III (extravasation). Acupuncture is thus superior to conventional forms of treatment. This

is the case, not only during an attack but also prophylactically between attacks.

As already mentioned, another one-third of the cases suffer from disorders of the locomotor apparatus. In these cases the effects of relaxation and increased circulation are important. As is often the case in acupuncture, local as well as distant points which are far outside the segment concept are used. For the cervical syndrome, for example, points on the ventral, proximal third of the lower leg are used. Only recently it has been demonstrated that in disorders of the musculature of the shoulder region the process, measured electromyographically, is the same as that of the anterior tibialis muscle.

The remaining one-third of the cases is made up of a large number of conditions including enuresis nocturna, irritable colon, peptic and duodenal ulcers as well as ulcers of the leg, amenorrhoea and dysmenorrhoea, tics, trigeminal neuralgia, to mention a few. I would like to draw your attention to one condition of this group — juvenile bronchial asthma. In this condition also acupuncture has an effect on the auxiliary respiratory muscles. The patient does not take in a great deal more air in this way, but gets the air more constantly so that no more feared attacks occur. It is unparadonable, in my opinion, not to think of acupuncture for the treatment of juvenile asthma.

In unilateral diseases of the lung, there is always a reduction in the movement of the diaphragm on the affected side. Changes in this can be brought about by needling a single point, namely B 17.

Such experiments have been carried out on both humans and animals and show that acupuncture points with specific effects must exist. We may postulate today that every acupuncture point has to have a local, a regional and a segmental effect which all appear at about the same time. A large number of points have also a general effect, e.g. St 36, LI 4.

Naturally several points are used in daily practice. We usually treat once a week except in acute or very painful conditions and in cases of paralysis. The needles are inserted more deeply in the latter case as well as for acupuncture-analgesia, where the needles are also stimulated electrically or manually. This is almost never done other than for acupuncture-analgesia. The reason for this is found in ARNDT-SCHULZE's rule which applies especially to acupuncture. This rule states that in the biological system, a slight stimulation produces the greatest effect, but a strong stimulation causes blockage. The latter is desired for pain and acute conditions. In the case of paralysis, on the other hand, stimulation of the perineurium through deep needle insertion is chosen to activate the remaining intact nerve cells. We are of the opinion that the specifications for the direction of insertion and form of rotation for stimulation which are given in some text books are meaningless. The same is true for the depth of insertion which varies considerably for each individual case.

We consider a comprehensive case history is very important. We prefer the patient to talk freely rather than answer questions. In this way (which admittedly is sometimes difficult and strenuous) we can get to know the patient's own views on the origin of his complaints and any particular causes which trigger the attacks. We

call such information 'modalities' and as a subsequence, choose points which take these into account. For example, TW15 for sensitivity to changes in the weather.

Of course, animal experiments are also necessary. Here are a few examples of acupuncture on cattle which KOTHBAUER and ZEROBIN have carried out.

Case 1

A young, sexually disinterested bull was treated at a state insemination institute. The point B 31 was needed. With the needles still in place, collection of semen was started. A single acupuncture treatment increased this animal's semen both in quality and quantity for a period of three weeks — this plateau was retained for another 3 weeks before a gradual decline began. Renewed acupuncture, 9 weeks later, resulted in each of the three phases being lengthened by about a week. Three further treatments resulted in the bull becoming a valuable member of the institute.

Case 2

Acupuncture points in healthy animals are not sensitive to pressure. If a weak iodine solution is introduced into various inner organs thereby causing slight transitory inflammation, the animal demonstrates marked reflex defence behaviour when the corresponding associated or concurrent point is touched. After about two weeks, when the inflammation subsides, even intense pressure may be applied to the point without any defence reaction on the part of the animal. Further research will show whether a screening method can be derived from this phenomenon. As a result of experiments with bulls, acupuncture is being used in the treatment of infertility and subfertility in human males.

Case 3

Another known fact is that the duration of labour may be reduced by acupuncture. A study on primiparae (the period from a specific point in the dilation of the os uteri to the expulsion of the foetus has been standardised) showed that in women who had received acupuncture from 3 weeks before until the expected date of birth, the above time period was about half of that of the control group. A subsequent experiment with cows, whereby sensors were implanted, showed that all labour contractions progressed from the fundus to the cervix of the uterus in cows which had been treated with acupuncture, whereas the untreated animals also had circular contractions as well as some in the opposite direction. This explained the difference in the duration of labour we achieved in humans.

Many more such experiments have been carried out. For example, the influence of St 12 on the mobility of the stomach, or G 37 on the flow of bile.

These experiments have taught us that modern medical research methods are making it increasingly possible for us to check and to accept empirical experiences. It is just as important to study acupuncture in detail, both in theory and practice as we have been doing for years, for example in Vienna. For this reason, also, we teach acupuncture at the universities as is also the case in some Eastern European countries. It will be the task of an international association of scientific acupuncture societies, such as ICMART to improve the exchange of knowledge, unify the point nomenclature and develop more unified forms of teaching.

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