

Lasers and De Qi

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We have all the tools here and now to bring health care to a higher level while making it cost-effective and kinder. Lasers (and other energy based treatments) promise to revolutionize the ways we care for one another across many specialties and disciplines, perhaps even taking our practice of acupuncture to new levels.

The single greatest reason that laser light holds such promise may be that it adds easily accessible energy to profoundly stimulate all activities and functions of cells and tissues, even increasing overall vitality in living systems. For this reason, early on in this series, laser therapy was described as more like an ultimate form of moxa than acupuncture.

Yet new kinds of laser devices have become available. In addition to offering laser therapy's well known effects to promote biological function, regenerate tissue, reduce inflammation and alleviate pain, some of these new instruments are designed and intended to elicit a stimulus/response and to be practiced in ways similar to traditional acupuncture.

Laserpuncture vs. laser acupuncture

What is meant by the terms laserpuncture and laser acupuncture? How do these methods differ from acupuncture with needles and from laser therapy?

Laserpuncture is a term commonly used to describe the treatment of acupoints sequentially with a laser single probe. Since points are lasered singly, this process is time consuming. It is also fundamentally different from traditional acupuncture in which one or more needles are generally inserted, stimulated and retained as a group for a period of time.

It has been proposed that laser acupuncture might be defined as the placement of one or more sources of laser light over acupoints, allowing for simultaneous stimulation and unattended treatment. In Europe this technique has also been called laser needle acupuncture, laser needles or laserneedles. It has also been suggested that in order to qualify as genuine acupuncture, the laser stimulus must be strong enough to elicit a response similar to that of needle acupuncture.

In 2000 Gerhard Litscher of the Department of Biomedical Engineering and Research at the Medical University of Graz, Austria first demonstrated that stimulating vision-related acupuncture points both with traditional acupuncture needles and laser acupuncture at sufficiently high intensity produced significant increases in the velocity of blood flow in the ophthalmic artery.¹ Professor Litscher succeeded not only in objectively measuring the effects of needle acupuncture on the brain but also in proving that laser systems may produce effects largely comparable to needles.

De qi, needles and lasers

According to TCM one must first obtain qi for acupuncture to be effective. In traditional acupuncture metal needles are inserted and stimulated until de qi sensation is evoked, and patients may describe this feeling as a heaviness, numbness or like an electrical current running along the treated meridian.

De qi sensations may also be achieved with laser light if it is of sufficient intensity. The threshold for acupuncture-like effects with lasers appears to begin at an intensity of around 1 Watt/cm², and further concentration of laser energy may produce greater effects.²

It is important to understand that laser light may be concentrated to achieve high intensities yet still be given at relatively low average output powers. This is accomplished by reducing the area of the laser beam. Just as the

¹ G. Litscher (1), L. Wang (1), M. Wiesner-Zechmeister (2), “*Specific Effects of Laserpuncture on the Cerebral Circulation*”, Lasers Medical Sci, Vol 15 Issue 1 (2000) pp 57-62.

² Litscher, G et al, “*Acupuncture using laser needles modulates brain function: first evidence from functional transcranial Doppler sonography and functional magnetic resonance imaging.*” Laser Med Sci 2004;19(1):6-11.

force of water flowing languidly from a garden hose may be intensified and condensed by closing off most of the lumen of the hose with one's thumb, so laser light may be concentrated by narrowing the beam to greatly increase depth of penetration and stimulus on a given point. Since laser light disperses once in contact with tissue, even when the beam has been concentrated to intensities of 20 Watts/cm² or more at a point with a diameter of a few millimeters on the skin, it is still possible to administer treatment comfortably and safely as long as output power is modest.

The clinical practice of laser needle acupuncture

When I visited Germany last year to attend the annual conference of the European Biological Laser Therapy and Acupuncture Association,³ I had the opportunity to observe the practice of laser acupuncture using multi-channel laser needle systems for the first time over the course of several days and in two separate clinics. I also was able to speak at length with eight to ten practitioners, some of whom had been using these devices for years. All whom I spoke with gave this form of treatment high marks. Many described it as the central therapy in their clinics.

One of the big attractions of practicing this kind of laser acupuncture is that once the lasers are in place, treatment can be unattended. As anyone administering laser therapy via hand held probes knows, that method of treatment is often time consuming. The systems I saw employed eight to twelve separate channels and allowed clinicians to select among several laser wavelengths. Infrared diodes of 810 nanometers and 150 milliwatts were the most popular. Red diodes of 680 nanometers and 50 milliwatts ran a close second. Most used some of both. The laser diodes themselves were housed within the control unit, and fiberoptic cables suspended from an adjustable arm conducted the light and could be affixed using clear plastic tape and a metal sleeve to direct laser light precisely over body points. Scalp and ear points were treatable with the assistance of a headband and guidewires to turn and support the fiberoptic cables.

Personal experience is necessary to understand and communicate the essence of a therapy. I am looking forward to gaining such experience firsthand and letting you know in a future article. In the meantime, I am very grateful to

³ The European Biological Laser Therapy and Acupuncture Association (EGLA) is generally scheduled on the last weekend in June annually.

Dr. Volkmar Kreisel who has kindly agreed to share his experience. Dr. Kreisel is a fully trained acupuncturist who practices oriental medicine four days a week while working a single day in his original career as an anaesthesiologist. He writes, "As you know, I have used laserneedle acupuncture for some thousand treatments. The patients normally do not notice when the laser is started. So in the beginning of the treatment they also do not feel any de qi sensation. Just as well they feel no heat or any other sensation on the skin. Some minutes later (mostly 5 to 10 minutes) after starting the laser many patients report a pleasant warm and sometimes vibrating feeling in some treated areas. This is really similar to a de qi. It does not arise immediately, but it intensifies slowly over some minutes and continues until the end of the treatment. In some cases it spreads from distal to central and is very relaxing. Frequently this de qi does not appear on every treated acupuncture point. It is often projected into symptom points or regulating points like hegu. Also the frequency the laser is pulsed with has an influence on which points react.

There are some studies comparing the effects of laserneedles to metal needles. They have shown that the initial stimulation of metal is higher than the initial stimulation of laser, but it fades earlier (it is like a spike). Laserneedle stimulation initially is not as strong as metal needle stimulation, but it continues much longer and rises during the whole treatment. This correlates to my own experience. By the way I have treated myself with laserneedles and I have felt this smooth de qi sensation too.

Frequently I combine laserneedle acupuncture on the body or on YNSA with metal needle ear acupuncture. In these cases I mostly use similar points on the ear and on the body (such as hypothalamus and hegu) for intensification. For children and anxious patients I only use laserneedle acupuncture because it is completely painless. My youngest patients were in the age of three years.

An interesting case I have treated last summer. It was a seven year old boy suffering on paralysis of n. facialis and incomplete closing eyelid related to an infection with borreliosis. After only two (!) treatments with laserneedle acupuncture this symptoms faded. Calling his father two months later the boy was without any neurological symptoms - really amazing!

Invitation to attend NAALT 2009 in San Francisco

You are invited to attend the 10th anniversary celebration and conference of the North American Association for Laser Therapy (NAALT) which will be

held in San Francisco, California, U.S.A. June 11, 12 and 13, 2009 at San Francisco State University.

Jan Tuner and Lars Hode, perhaps the most influential voices to advance laser therapy and co-authors of The Laser Therapy Handbook will be our keynote speakers. Other invited speakers include Mary Dyson, Patricia Trimmers and Praveen Arany. NAALT 2009 will focus on clinical applications and techniques of laser therapy, including laser acupuncture and more, photobiological mechanisms, laser safety, basic laser physics, regulatory and reimbursement issues as well as the latest technology.

On campus housing is available to make your visit to San Francisco cost-effective. More information and online registration are available at www.naalt.org.