EDITORIAL, 7.1: Does LLLT prevent Postherpetic Neuralgia?

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In this issue of *Laser Therapy*, Otsuka and associates reported the early application of low reactive-level laser therapy (LLLT) for the acute phase of herpes zoster.⁽¹⁾ They described how the early initiation of LLLT using a Helium-Neon (HeNe) laser not only promoted wound healing and reduced acute pain of herpes zoster, but also reduced the incidence of postherpetic neuralgia (PHN).

PHN is an extremely debilitating condition. Its incidence increases with advancing age. It is documented that PHN occurs in more than one third of patients over 60 years of age who suffer an acute herpes zoster attack.⁽²⁾ Otsuka *et al.*⁽¹⁾ reported that no severe pain was noted in 15 patients over 60 years of age whom they had treated with LLLT for the acute phase of herpes zoster. Their results clearly showed that the early application of LLLT in acute phase of herpes zoster has real potential for the prevention of PHN.

PHN is included in a category of neuropathic pain syndromes that are result of nervous system dysfunction.⁽³⁾ Characteristics of neuropathic pain include: occurrence in the absence of concurrent injury; onset after a lag period; dysesthesia (burning may be constant); paraesthesias are present; paroxysmal lancinating pains may occur in hypaesthetic areas; and abnormal responses to nonnoxious stimuli occur (e.g., allodynia). In addition to these characteristics, the accompanying changes in blood flow, decreased temperature, and oedema further complicate the picture.

PHN is associated with loss of large myelinated fibres in the peripheral nerve with a remaining excess of small excitatory fibres. According to the gate-control theory of Wall and Melzack, pain modulation occurs at the dorsal horn of the spinal cord. The incoming large myelinated fibre input exerts an inhibitory effect on central pain transmission, via lamina II of the substantia gelatinosa.⁽⁴⁾ A decrease in this activity in PHN might reduce the inhibitory effect on pain transmission, causing spontaneous pain and exaggerated response to noxious and nonnoxious stimuli.

The common denominator of neuropathic pain is neurologic dysfunction in the pain-sensing and pain-modulating circuits. Accordingly, therapy directed at sites causing neurotransmission or neuromodulation holds promise. There are many reported treatments for PHN including pharmacotherapy, nerve blockade using local anaesthetics and electrical stimulation. However, no consistently reliable therapy for PHN has been found. Currently, there are some reports that low reactive-level laser therapy (LLLT) attenuates PHN.^(2,5,6) Increased regional blood flow, similar to sympathetic blockade, can contribute to pain attenuation by producing vasodilation and a subsequent increase in the transfer of pain mediating substances. Recent animal studies have made the mechanism of pain attenuation by LLLT clear. It was reported that laser irradiation might selectively inhibit nociceptive neural activities in the rat.⁽⁷⁾ Inhibitory effects of laser irradiation on the impulse conduction within a peripheral nerve,⁽⁸⁾ the dorsal horn neurons,⁽⁹⁾ and ascending signals from the spinal cord to the higher central nervous system⁽¹⁰⁾ by laser irradiation was also reported. Regenerating primary afferent branches after nerve injury show spontaneous discharge and abnormal nociceptor function. Ephaptic transmission also may be responsible for PHN pain. LLLT might be able to attenuate PHN pain by decreasing spontaneous discharge and ephaptic transmission. Laser irradiation is thought to depress sympathetic ganglionic transmission, and hyperpolarization of ganglionic cells seems to take part in the mechanism of laser action.⁽¹¹⁾ This might partly explain that laser irradiation near the stellate ganglion brought similar effects obtained by stellate ganglion block.⁽¹²⁾ Considering the results of Otsuka, *et al.*⁽¹⁾ and the above references related to the mechanism of pain attenuation by laser irradiation, we can recommend the early application of LLLT in the acute phase of herpes zoster in order to prevent PHN, in particular for the elderly patient over 60 years of age.

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who is recognized as being particularly prone to developing this painful and debilitating condition.

WALT Membership

On another subject entirely, we are now well into the 1995 Membership year for the WALT. In order to attract more papers to the journal, the Editorial team feels it is worthwhile to publicize membership of WALT, the World Association of Laser Therapy, of which this journal is the official organ. To help with this, we have included a Membership Application Form in the final pages of the journal. If you are not currently a member, please consider joining. If you are already a member, use the form to go out and actively recruit new members from amongst your colleagues. Please consider that each new member increases the potential paper and article pool from which the journal receives its papers for consideration by the reviewers, and this can only benefit the quality of the papers we print.

Once again, may I finish this first Editorial of Volume 7 with another plea for more papers and articles from our readers and your colleagues. We cannot receive too many! The more we receive, the better will be the quality of the journal. Additionally we may then reach our goal of, at first, increasing the number of journal pages to 56 from the current 48, and then in the future increasing publication of each volume to six issues a year instead of the current four. These were my stated goals when I took on the post of Senior Editor-in-Chief.

Laser Therapy is printed on A4 size paper, with double columns and a comparatively small type size for our article style. This format is very greedy as far as 'gobbling' text is concerned: on average, four to five pages of standard double-spaced typed manuscript are required for each full finished page of the journal. The average size for finished articles is between four and six typeset pages, including figures and tables. This means that each issue requires at least eight to ten articles in order to fulfill the 48 page requirement: when we move up to 56 pages, that number will increase to a staggering 12 to 14 articles. Allowing for a rejection rate of 20% - 25%, that means we will need to receive around 18 - 20 articles *per issue*. I sincerely hope we can reach the initial goal of a 56 page *Laser Therapy*. It will better serve the scientific community as a whole, and our readers in particular. However, we cannot envisage reaching that goal with the current supply of articles. Please, when you have some scientific or good clinical data to publish on the laser therapy or related photo-

bioactivation fields, think first of *Laser Therapy*: examine and follow the "Instructions for Contributors", found at the end of the journal, and send us your articles. We will all benefit from your efforts.

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