Efficacy Of Low-Level Laser Therapy In The Treatment Of Neck Pain

13 Nov 2009  Click to Print

An article published Online First and in a future edition of The Lancet reports that low-level laser therapy (LLLT) reduces pain after treatment for non-specific neck pain. The article is the work of Dr Roberta Chow, Nerve Research Foundation, Brain and Mind Research Institute, University of Sydney, Australia, and colleagues.

In the next thirty years, chronic pain is predicted to reach epidemic proportions in developed countries with ageing populations. Affecting 10 to 24 percent of the population, chronic neck pain is a highly prevalent condition. LLLT uses laser irradiation to help tissue repair, relieve pain, and stimulate acupuncture points. LLLT is non-invasive, painless, and can be easily administered in primary-care settings. The incidence of adverse effects is low and similar to that of placebo. There are no reports of serious events. The authors in this study carried-out a systematic review and meta-analysis of randomised controlled trials to assess the efficacy of LLLT in neck pain. Using a 100-point scale, they determined difference in pain experienced.

Sixteen different randomised controlled trials including a total of 820 patients were identified by the team. For acute neck pain, evidence was limited to two trials with mixed results. They indicated that patients were around 70 percent more likely to experience reduced pain following LLLT compared with placebo. Five trials of chronic neck pain showed patients given LLLT were around four times more likely to have reduced pain compared with placebo. Patients in eleven trials reported reductions of chronic pain of around 20 points on the 100 point scale. In seven of these trials there was follow-up data for 1 to 22 weeks after completion of treatment. It showed short-term pain relief persisting in the medium term with a reduction of 22 points on the scale. Side-effects from LLLT were mild and similar from those of placebo.

The authors explain that the mechanisms for LLLT- mediated pain relief are not fully understood, but could involve reducing inflammation, nerve conduction of painful stimuli, and muscle fatigue. They remark: "Which of these mechanisms are most important cannot be determined, because all of the trials irradiated several points overlying joints, nerves, and muscles."

They add: "Whatever the mechanism of action, clinical benefits of LLLT occur both when LLLT is used as monotherapy and in the context of a regular exercise and stretching programme. In clinical settings, combination with an exercise programme is probably preferable. The results of LLLT in this review compare favourably with other widely used therapies, and especially with pharmacological interventions, for which evidence is sparse and side-effects are common."

They write in conclusion: "[This study] shows that LLLT reduces pain immediately after treatment in acute neck pain and up to 22 weeks after completion of treatment in patients with chronic neck pain."
In an associated comment, Dr Jaime Guzman, University of British Columbia, Vancouver, BC, Canada, remarks: "Today's findings of low-level laser therapy indicate that this non-invasive treatment provides pain relief in the short and medium term for people with neck pain. This evidence is more solid than that for many current interventions. Although mechanisms of action and effects on function and occupational outcomes are not clearly understood and warrant further impartial study, low-level laser therapy is an option worthy of consideration for management of non-specific neck pain."

"Efficacy of low-level laser therapy in the management of neck pain: a systematic review and meta-analysis of randomised placebo or active-treatment controlled trials"
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DOI: 10.1016/S0140-6736(09)61522-1
The Lancet

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