Use of low level laser therapy to treat chronic wounds

Although most injuries heal rapidly, others, particularly chronic skin wounds, are notoriously difficult to heal, even with good management. Low level laser therapy can accelerate the healing of such injuries. Lydia Jack, a tissue viability nurse from Inverclyde Royal Hospital in Scotland, describes her experience with this technology…

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Low level laser therapy is the application of a narrow spectral width light over injuries or lesions to stimulate healing within those tissues. The application can improve wound healing rates and reduce pain and risk of infection.[1]

Laser therapy has been used to treat ulcers, pressure sores, infected wounds, burns, traumatic wounds and postoperative wounds that are failing to heal.[2] Laser therapy is thought to work through a variety of mechanisms:

- Photons from a laser probe are absorbed into the mitochondria and cell membranes of the cells.
- Single oxygen molecules build up which influences the formation of adenosine triphosphate, which in turn leads to replication of DNA.
- Increased DNA leads to increased neurotransmission.
- A cascade of metabolic effects results in various physiological changes.

In summary, this results in improved tissue repair, faster resolution of the inflammatory response, and reduction of pain.

As a tissue viability nurse I first came across laser therapy at a study day. I decided that, if the results were as good as they appeared, I would trial with a view to purchase. I have been using a laser system for over a year now. It is simple to use, very cost-effective in terms of finance and time, and comes in its own case for easy transport between patients. It is used in conjunction with the patient's dressing regime, according to the holistic wound assessment.[3]

CASE STUDIES

A 49-year-old male with multiple sclerosis (see Figure 1) was referred to me by a consultant surgeon. He was wheelchair bound but had a good quality of life and was a very active campaigner for disabled people. He had had a stage 4 pressure sore on his buttock for over two years. The district nurses had been using conventional dressings and pressure relief with minimal success. Within seven months of laser treatment the pressure sore was fully healed and has remained healed ever since (see Figure 2).

An 89-year-old female presented with an arterial ulcer that she had been treating at home for many years with no success (see Figure 3). This woman has been attending for laser treatment for the past ten months and the wound is continuing to progress well (see Figure 4).

Figure 1 Stage 4 pressure sore in a 49-year-old male before laser treatment …

Figure 2 … and seven months later

Figure 3 An arterial ulcer in an 89-year-old female before laser treatment…

Figure 4 …and after 10 months of laser therapy

For infection control precautions a transparent film dressing is used to cover the laser head between patients, and on removal the laser probe is cleaned with an alcohol wipe.

Conclusion

I have set up a laser outpatient clinic and have successfully treated over 50 patients with various chronic wounds ranging from venous leg ulcers, arterial leg ulcers, pressure sores, pilonidal sinus, traumatic wounds and burns. I am currently in the process of undertaking a patient satisfaction survey looking at the patient's perspective of their treatment. ❖

References

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