PULSED RADIOFREQUENCY ELECTROMAGNETIC FIELD FOR PAIN AND WOUND HEALING THERAPY

Executive Summary

[Adapted from the report by MAHARITA AB RAHMAN]

Review Group Membership

MaHTAS Reviewer:
Maharita Ab Rahman
Datin Dr. Rugayah Bakri
Dr Izzuna Mudla Mohamed Ghazali

External Reviewer:
Dr. Harikrishna K.R. Nair

For further information please contact:

Health Technology Assessment Section (MaHTAS)
Medical Development Division
Ministry of Health Malaysia
Level 4, Block E1, Precinct 1
Government Office Complex
62590 Putrajaya.

Tel: 603 8883 1246

Fax: 603 8883 1230

Available at the following website:
http://www.moh.gov.my

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Introduction

Pain is an unpleasant sensation that can range from mild, localized discomfort to agony perception that signals the individual that tissue damage has occurred or may be occurring. Pain can be “acute” or “chronic”. Meanwhile wounds are injuries that break the skin or other body tissues which includes surgery, sutures, cuts, scratches, stitches and punctured skin.

Pain and wound require further assessment before they getting worst. Various types of treatment can be used includes drugs, complementary medicines or other alternative medicines. One of the alternative medicines used is electrical stimulations. Electric stimulations involve the transfer of an electrical current to the skin surface adjacent to the wound edge via two electrodes, with the net effect of generating a flow of ions through the wound tissues.

There are various types of electrical stimulations used for wound healing and pain therapy. The electrical stimulations include shortwave electromagnetic therapies such as pulsed shortwave radiofrequency electromagnetic field therapy or pulsed shortwave diathermy.

This technology review report is mainly focused on pulsed shortwave radiofrequency electromagnetic field therapy. Extensive numbers of clinical studies have been performed using non-thermal pulsed shortwave radiofrequency electromagnetic over the last five decades for the treatment of acute and chronic pain.

Objective/Aim

To assess the safety, efficacy / effectiveness and cost-effectiveness of pulsed radiofrequency electromagnetic field (PRFE) for pain therapy and wound healing.

Results and Conclusions

Based on the review, there were two meta-analysis, and four randomized control trials (RCTs) identified. The trials were published between 1992 to 2014. Both meta-analysis found that electrical stimulation including PRFE was effective as an adjunct therapy to accelerate wound healing (improved wound size) and reduce pain. All four RCTs also showed that PRFE can be used as an adjunct therapy for pain reduction after surgery or for leg ulcer healing. However, each RCT concluded that, larger-scale clinical trials were needed for further validation of the therapy.
In conclusion, the pulsed radiofrequency electromagnetic (PRFE) field seemed to have the potential as an adjunct therapy to accelerate and improve wound healing and reduce pain. However, the quality of the evidence was not satisfactory especially due to insufficient sample size and short study period

Methods

Electronic databases were searched through Ovid MEDLINE(R) In-Process & Other Non-Indexed Citations and Ovid MEDLINE(R) 1948 to present, and Embase 1996 to 2015 June 08. Searches were also run in PubMed, Horizon Scanning databases, FDA website and INAHTA for published reports.

Search was limited to studies published within 1990s to 2000s. Google and Google Scholar were also used to search for additional web-based materials and information about the technology. Besides, additional articles from reviewing the references of retrieved articles also included.