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Role of extremely low frequency electromagnetic (ELF-EM) waves at resonance frequency for bacterial skin infection in patients with type 2 diabetes mellitus

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Statement of the Problem: Sensory neuropathy, atherosclerotic vascular disease, and hyperglycemia all predispose patients with diabetes to skin and soft tissue infections. These can affect any skin surface but most commonly involve the feet, these infections span the spectrum from simple, superficial cellulitis to chronic osteomyelitis.

Aim: The aim of this study was to demonstrate a new method for the control of bacterial growth, through the interference with the bioelectric signals generated from the microbe during cell division by extremely low frequency electromagnetic waves (ELF-EMW-ELF-EM) at resonance frequency.

Methodology & Theoretical Orientation: Patients will be screened for fulfillment of the inclusion and exclusion criteria. Medical history, physical examination, local and systemic signs and symptoms of infection, wound description and vital signs were evaluated. Bacteriological assessment as a swab was collected from infected site before and after each session, for culture and identification of the causative pathogen, without the patient received antibiotic regimen. Patient was exposed to one session every other day till complete eradication of causative pathogen of the infection with maximum exposure 12 sessions, duration of each session depends on the causative organisms.

Findings: The bacteriological cultures revealed no growth for microorganisms by the end of sessions.

Conclusions: The resonance frequency of ELF-EM waves that inhibit bacterial growth is a promising method for the treatment of skin infection in diabetic patients.

Significance & Impact of the Study: This new technique for treatment of bacterial infections is proved to be fast, economic, non-invasive applicable technique in treatment of type2 DM.

Biography

Mohamed Salaheldin has specialized in Internal Medicine after being involved in research work related to neuro-vascular, dermatologic and pathological complications of endocrinal disease. He is also interested in contemporary bio-physical techniques adding new input in research work related to infection control during his experience in Egyptian military hospitals and research institutes to participate as a member in the team of the clinical trial to assess the role of ELF-EM waves in controlling skin infection and wound infection in type 2 diabetes patients.

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