Electrical Stimulation Therapy

Indications and Contraindications

Indications	Contraindications

• Those who have been deemed a candidate for adjunctive therapies, see "Determining Candidacy for Adjunctive Therapies"
• Wound etiologies:
  ○ Diabetic foot ulcers (1A)
  ○ Pressure injuries (1B)
  ○ Surgical wounds, i.e. acute incisions, skin flaps, donor sites, and dehiscence (1B)
  ○ Venous leg ulcers (2)
  ○ Arterial leg ulcers (2)
  ○ Skin tears
  ○ Burns
• To increase blood flow, microcirculation of the skin, and tissue oxygen levels[1]
• To reduce edema[1]
• To solubilize clotted blood[1-2]
• To inhibit bacterial growth rates[1, 3]
• To stimulate fibroblsts to enhance collagen and DNA synthesis
• To increase migration and proliferation of cells at the wound site, i.e. neutrophils, macrophages, and fibroblasts
• For acute and chronic pain management
• To improve wound contraction and scar quality
• To accelerate wound resurfacing
	• When stimulation of cell proliferation is contraindicated, i.e. malignancy (active, local or potential for mets)
	• Where there are metal ions or topical preparation residues, i.e. povidone-iodine, zinc, silver, calcium, sodium chloride
	• Where the placement of electrodes could adversely affect a reflex center, i.e. the carotid sinus, heart, parasympathetic nerves, ganglion, laryngeal muscles, phrenic nerve
	• Where electrical current could affect the function of an electronic implant, i.e. over a cardiac pacemaker
	• Untreated osteomyelitis or immature bone
	• Over a pregnant uterus
	• Inflammatory ulcers
	• Over an active deep vein thrombosis or thrombophlebitis
	• In the presence of severe arterial insufficiency, i.e. ABI <0.5
	• Over reproductive organs
	• Over wounds that are overly moist
	• In hemophiliacs
	• Over areas of localized infection (osteomyelitis)
	• Heat sensitivity
	• Tuberculosis

Precautions	
• Severe peripheral vascular disease • Children less than 3 years of age • Over areas of impaired sensation and over regenerating nerves • In those with impaired cognition • Over superficial metal implants, i.e. surgical staples • In those on anticoagulants or at risk for hemorrhage • Over an arear of gross edema, scar tissue, or broken skin • In those with heart conduction problems, i.e. atrial fibrillation • Those with autonomic dysreflexia • In those with adhesive allergies • Over tissues with high resistance to electrical current, i.e. bone • Factors increasing skin impedance include the presence of hair and oil and cooler skin color	

Level of Evidence	Definition
1A	Evidence obtained from meta-analysis or systematic review of RCTs
1B	Evidence obtained from at least one RCT
2A	Evidence obtained from at least one well-designed controlled study without randomization
2B	Evidence obtained from at least one other type of well-designed quasi-experimental study without randomization
3	Evidence obtained from well-designed non-experimental descriptive study, such as a comparative study, correlation study, and/or case study
4	Evidence obtained from expert committee reports or opinions and/or clinical experience of respected authority

RCT = randomized controlled trial

References

1. Sussman C. Electrical stimulation for wound healing. In: Sussman C, Bates-Jensen B (eds). Wound Care: A Collaborative Practice Manual for Health Professionals. Third edition. Baltimore: Lippincott Williams &Wilkins, 2007;505-553.
2. Sawyer PN. Bioelectric phenomena and intravascular thrombosis: the first 12 years. Surgery. 1964;56”1020-1026.
3. Rowley BA MJ, Chase G. The influence of electrical current on an infecting microorganism in wounds. Ann NY Acad Sci. 1974;238:543-551.