Effects of Therapeutic Touch on Healing of the Skin in Rats

Author links open overlay panelAndré Luiz Thomaz de Souza Sc.M [1], David Patrick Carvalho Rosa [2], Bruno Anjos Blanco Sc.M [1], Patrícia Passaglia Sc.M [3], Angelita Maria Stabile PhD [4]
Show more

https://doi.org/10.1016/j.explore.2017.06.006Get rights and content

Context

Therapeutic touch is a complementary treatment directed toward the balance of the energy field surrounding living beings.

Objective

This study's aim was to investigate the effect of therapeutic touch on wound area contraction and fibroblast proliferation in rat skin.

Design

This study was conducted using 24 male *Wistar* rats with dorsal wounds of diameter 8 mm. The rats were divided into the following two groups: a control group: in this, the wounds were sanitized with filtered water and neutral-pH soap and a treatment group: in this, the wounds were sanitized as in the control group but the rats also underwent to daily sessions of therapeutic touch. Wound area was measured on days 1, 4, and 7 using imagelab software, version 2.4 R.C. On days 4 and 7, six animals in each group were euthanized so that the lesioned tissue could be collected for fibroblast counts and histological evaluations.

Results

On days 1 and 4, wound areas were similar in both groups. Moreover, no significant differences in fibroblast counts were observed on day 4. On day 7, however, fibroblast counts were significantly higher in the treated group than in the control group, with a subsequent wound shrinkage.

Conclusion

These data indicate that therapeutic touch may accelerate wound repair, possibly by increasing fibroblast activity.

Introduction

Wound healing is a complex process in which injured tissues are replaced with healthy tissues[1] by means of a continuous sequence of events divided into three phases: inflammatory, proliferative, and maturation.2, 3 The initial inflammatory phase develops within 24 h of injury, and it lasts for an average of two to three days1, 4; it is characterized by hemostasis and inflammation.[2] The proliferative phase sets in following the inflammatory phase and it lasts for an average of two to three weeks.5, 6 The features of this phase are epithelialization, angiogenesis, granulation tissue formation, and collagen-fiber deposition.[2] The final phase is maturation, which lasts the entire lifetime of the wound, considering that in approximately one year, 70–80% of the skin will be intact.[6] The primary feature of this process is the transition from granulation tissue to scar formation, with increased collagen deposition and wound contraction.[2]

Different therapeutic alternatives can be used in clinical practice to treat acute and chronic tissue wounds, such as topical medication, dressings, and debridement.7, 8 In addition to traditional methods, the use of complementary therapies, specifically energy therapies, appears as a potential alternative to accelerate skin healing; however, such methods require further studies to confirm their effectiveness. One of the earliest studies on energy therapies, also called curative energies, was conducted in the 1960s by Dr. Bernard Grad of McGill University in Montreal, Canada. After recognizing the therapeutic influences of the so-called spiritual and psychic healers, Dr. Grad investigated the effects of laying on of hands on cellular physiology, and conducted studies in animals and plants.[9] During his studies, Dr. Grad had the assistance of one healer named Oscar Estebany, a Hungarian colonel known to have healing powers with his hand touch. While investigating the effects of laying on of hands on rats in which experimental goiter was induced, Dr. Grad revealed that after 40 days of contact Oscar Estebany's hands, the animals had a significantly lower goiter incidence than animals that received no intervention.[9] Dr. Grad also investigated the effects of laying on of hands on experimental wounds in rats, and revealed

that the wound healing process was significantly improved in the group receiving the intervention.[9] After disseminating his results to the scientific community, many scientists speculated on the mechanisms that could accelerate wound healing. A proposed theory was that the hand placement of the healers intensified healing by accelerating the cellular and enzymatic activities that are involved in the scarring process.[9]

After becoming aware of Dr. Grad's studies, the biochemist Dr. Justa Smith, with the assistance of Oscar Estebany, conducted a study that evaluated the effects of hand laying on the digestive enzyme trypsin. Dr. Justa Smith discovered that Estebany's laying on of hands resulted in increased enzymatic reaction speed and confirmed Dr. Grad's Theory.[10]

From these findings regarding the healing energy through laying on of hands, in the 1970s, the nurse Dolores Krieger and the farsighted Dora Kunz proposed that to perform the laying hands is not necessary to be a healer, but rather to have knowledge about the stages involving treatment. According to Krieger and Kunz, every human being by means of intentionality in “doing good” is able to intervene on the energy field (EF) surrounding living beings, and assist in the rehabilitation process within pathological frameworks.[11] It should be emphasized that there is no exact definition for EF, nor established ways to measure it.[12]

In this context, Krieger and Kunz refer to laying on of hands as therapeutic touch (TT), which is considered a contemporary version of ancient healing practices.[11] The Krieger–Kunz method was then developed, which involves four steps for TT: (a) centralization of consciousness, (B) EF evaluation, (C) rebalancing or resynchronization of EF, (D) the EF reassessment.[11]

Among complementary treatments, TT has attracted the interest of the scientific community in the last decades because of its potential effects on several experimental and clinical conditions, especially in relation to fibroblast proliferation,[13] inflammatory response,[14] acceleration of healing response,[15] effects on pain thresholds,14, 16, 17 and increased hematocrit and hemoglobin levels.[18]

However, its use in the treatment for skin healing has not been well understood until now, and there is no strong evidence to support its use in clinical practice,[19] which reinforces the need for developing animal model experimental studies, followed by clinical trials. Hence, the present study's objective was to investigate the effect of

TT on wound area contraction and fibroblast proliferation during skin healing in rats.

Section snippets

Animal and Study Design

This laboratory experimental study was conducted using 24 male *Wistar* rats, which were 90 days old and weighed 270 ± 30 g. The animals were housed individually in PVC plastic boxes, in an environment with temperature controlled at 25°C ± 2°C, a 12/12-h light/dark cycle, *ad libitum* access to water, and balanced commercial solid food. Before lesion induction on the skin, the animals were randomly divided into two experimental groups and individuals were assignee numbers of 1–12: control (n = 12)

Results

Results showed that on days 1 and 4 the wound area in both groups was equivalent (Table 1). Furthermore, no significant differences were observed in the fibroblast counts between the groups on day 4. Nevertheless, on day 7, the average fibroblast count in the TT group was significantly higher than that in the control group (Table 2 and Fig. 3). Along with this increase, on day 7, the wound area of the treated group was significantly lower than that of the control group, as observed by the

Discussion

This study shows that TT influences skin healing, accelerates tissue repair by increasing fibroblast counts on day 7, followed by a reduction in wound area (Table 1, Table 2; Figure 2, Figure 3). However, the lack of evidence on the mechanisms modulated by TT imposes limitations on understanding how it interacts with the body.

The effects observed in this study mirror the discoveries of Dr. Bernard Grad and Dr. Justa Smith that TT increases the speed of enzymatic reactions, such as those

Conclusion

The data from this study suggest that seven sessions of TT performed daily for a period of two minutes were enough to induce acceleration in wound repair in *Wistar* rats. This result was observed by means of the reduction in the wound area and by the increase in fibroblast counts on day 7.

References (29)

- B. Li *et al.*
  Fibroblasts and myofibroblasts in wound healing: force generation and measurement
  J Tissue Viability
  (2011)
- J.G. Powers *et al.*
  Wound healing and treating wounds: chronic wound care and management
  J Am Acad Dermatol
  (2016)
- D.F. Lu *et al.*
  The effect of healing touch on the pain and mobility of persons with osteoarthritis: a feasibility study
  Geriatr Nurs
  (2013)
- M.G. Rohani *et al.*
  Matrix remodeling by MMPs during wound repair
  Matrix Biol
  (2015)
- K.S. Midwood *et al.*
  Tissue repair and the dynamics of the extracellular matrix
  Int J Biochem Cell Biol
  (2004)
- S. Guo *et al.*
  Factors affecting wound healing
  J Dent Res
  (2010)
- H. Sinno *et al.*
  Complements and the wound healing cascade: an updated review
  Plast Surg Int
  (2013)
- A.J. Busti *et al.*
  Effects of perioperative antiinflammatory and immunomodulating therapy on surgical wound healing
  Pharmacotherapy
  (2005)

- M.F.G.S. Tazima *et al.*
  Wound healing and biology
  Medicina (Ribeirão Preto)
  (2008)
- C. Isaac *et al.*
  Physiological wound healing
  Rev Med (São Paulo)
  (2010)