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Case Report

Gluteal neuromuscular stimulation in therapy and prophylaxis of recurrent sacral pressure ulcers

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Study design: Case study.
Objective: Positive influence of electrostimulation on the healing process of the gluteal decubital ulcers.
Setting: Department of Neurosurgery, University of Cologne, Germany.
Method: The present study reports on the effects of the electrostimulation of the floor-of-the-pelvis-muscles by means of an anal electrode. This procedure was shown to have a positive influence on the healing process of the gluteal decubital ulcers sustained by a patient with incomplete sensomotor paraplegia. Apart from the contraction of the floor-of-the-pelvis-muscles, we observed a contraction of the gluteal muscles on both sides.
Results: The ulcers, which had been resisting conventional treatments for months, showed signs of a beginning healing tendency. After 4 weeks both ulcers were completely healed up.
Conclusion: Because of its easy handling and its good amicability, electrostimulation of the gluteal region – one of the most common localisations of pressure-caused ulcers – by means of an anal electrode might be put to good effect even in prophylaxis in the treatment of paraplegic patients.
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Keywords: paraplegia; electrostimulation; decubital ulcer

Introduction

Pressure ulcers in the gluteal region constitute one of the more serious complication of spinal cord injury. It affects some 80% of this patient group,[1] requiring stationary treatment and imposing restrictions on the patients' mobility. The treatment of decubital ulcers is both expensive and long, depending on locus and seriousness. Consequently, it is important for both medical and economic reasons to complement the treatment of existing decubital ulcers by intensifying prophylaxis, as well as informing patients about how ulcers come into existence. In addition to established and operative therapies, the management of recurrent sacral pressure ulcers is increasingly being integrated into the programme.[2,3]

Methods

We report on the healing process of decubital ulcers in a 34-year-old soldier who sustained a Th9 cord injury caused by shooting (ASIA impairment Scale B). On being admitted to the rehabilitation centre 8 months after injury, he was able to perform the tasks of daily life on his own. From a clinical point of view, a sensory-motor paraplegia was established, as well as incontinence of the bladder and the rectum. For 6 months he had a large decubital ulcer in the gluteal region on both sides (on admission its size was 4.5 cm × 3 cm, the depth ranging from 10 to 15 mm), which made sitting increasingly uncomfortable. He was unable to sit up for more than 20 min and spent most of the day lying in bed. During these 6 months, conservative therapy had not had any healing effect on this ulcer. Our intensive rehabilitative therapy aimed at healing the decubital ulcer by means of physiotherapy and bladder training. The additional rehabilitation programme consisted also of occupational therapy to compensate for paresis especially in activities of daily living and for spasticity, which was also treated by administration of drugs (baclofen, tizanidin). The intensity of the therapy was adapted individually to the patients' ability to cope with the strain induced with a duration of about 3 h/day.

Results

During the first 10 weeks, the conservative therapy (reduction of pressure, occlusive bondage) administrated

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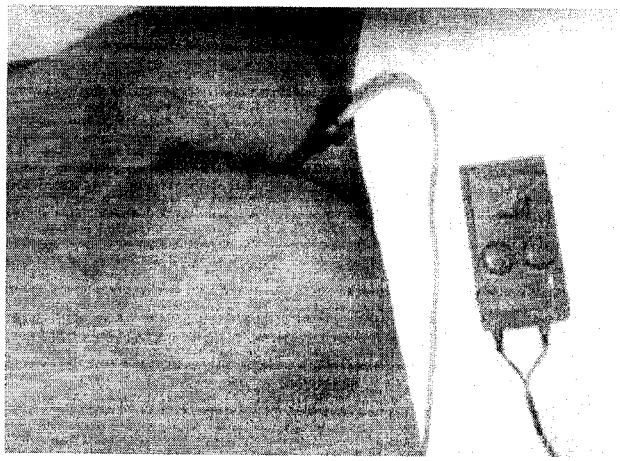

Figure 1 Position of the electrode during stimulation

at our clinic produced only poor results. At the beginning of the 11th week of rehabilitation therapy, bladder training was complemented by pelvic stimulation using an anal stimulation electrode. Stimulation sessions were performed three times a day for periods of 15–20 min (Figure 1). Apart from the contractions of the pelvic muscles strived at, this stimulation also led to a visible contraction of the gluteal muscles on both sides. No complications arose during stimulation therapy, which was well tolerated by the patient.

After 2 weeks of stimulation, the healing process was clear from the reduction of the size of the ulcers on both sides. The ulcers on the right side were completely healed within 4 weeks, those on the left side within 6 weeks. The patient was able to sit for up to 2 h without suffering any pain and without showing any observable change in the skin of the gluteal region. After having received appropriate instructions by a therapist, the patient was soon able to carry out the stimulation procedure by himself. In fact, the stimulation electrode is very easy to bring in. Also it can easily be held in the right position during stimulation, with no danger of additional irritation of the skin being caused by the fixing devices.

Conclusions

It is well known that trophism and blood supply are improved by electrostimulation, which is used in the treatment of decubital ulcers.[2] For example, Rischbieth *et al*[3] reports in a case study on the healing of therapy-resistant ulcers by means of Functional Electrical Stimulation of the gluteal muscle, in spite of the fact that these pressure ulcers had been resistant to treatment for years.

The use of an anal electrode for electrostimulation of the muscles in the gluteal region, one of the most common localisations of pressure-caused ulcers, might be put to good effect even in the prophylactic treatment of paraplegic patients thanks to its easy handling and its patient friendliness. However, further research is necessary to confirm the effects observed in this case study and to establish which group of patients may benefit from the therapy proposed.

References

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