

Effects of Polydeoxyribonucleotide in the Treatment of Pressure Ulcers

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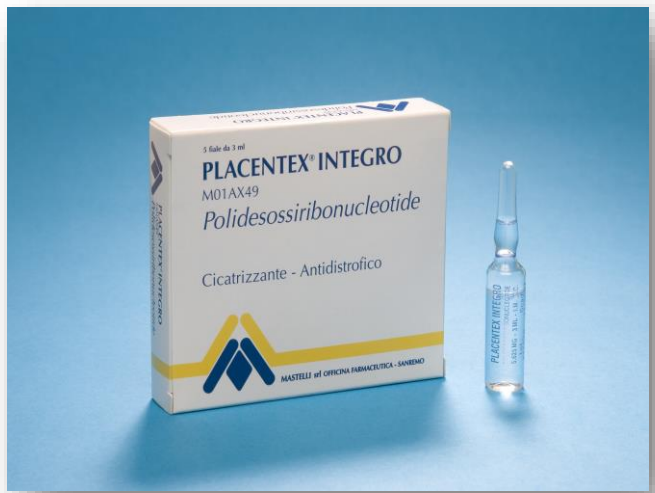
Introduction

Purpose

Polydeoxyribonucleotide (PDRN) is a low-molecular weight DNA complex that is known to act on adenosine receptors and stimulate vascular endothelial growth factor, thereby accelerating DNA biosynthesis and boosting the healing process. PDRN helps healing in wounds involving skin damage by stimulating tissue reconstruction without any side effects. Therefore, this study aimed to examine the positive effects of PDRN on the wound-healing process in pressure ulcers.

Method

In this randomized controlled trial, the effects of PDRN (Placentex® Integro; Mastelli Srl, Sanremo, Italy) were compared over time between an experimental group (n=11) and a control group (n=12). The former was administered the same dose of PDRN intramuscularly (1 ampule, 3 mL, 5.625 mg, for 5 days) for 2 weeks and perilesionally (1 ampule, 3 mL, 5.625 mg, twice a week) for 4 weeks. The primary endpoint for determining efficacy was size of wound using VISITRAK Digital (Smith & Nephew, Largo, FL). The secondary endpoint was determined using Pressure ulcer scale for healing



Result & Conclusion

Table 1. Comparison of wound surface area between the experimental and control groups (N = 23)

| Time | Exp (n = 11) | Cont (n = 12) | p |
|--------|------------------|-------------------|-------|
| | median (min–max) | median (min–max) | |
| week 1 | 5.30 (2.50–8.70) | 9.52 (4.80–17.00) | .007 |
| week 2 | 2.30 (0.3–5.90) | 6.45 (3.00–16.00) | .001 |
| week 3 | 1.30 (0.30–5.00) | 5.70 (2.00–16.00) | .001 |
| week 4 | 0.90 (0.20–4.50) | 4.25 (1.80–14.00) | <.001 |

Table 2. Comparison of PUSH score between the experimental and control groups (N = 23)

| Time | Exp (n = 11) | Cont (n = 12) | p |
|--------|------------------|------------------|-------|
| | median (min–max) | median (min–max) | |
| week 1 | 11 (8–14) | 13 (10–15) | .008 |
| week 2 | 10 (6–13) | 12.5 (10–14) | .002 |
| week 3 | 8 (5–11) | 11 (8–14) | .001 |
| week 4 | 4 (2–10) | 11 (6–13) | <.001 |

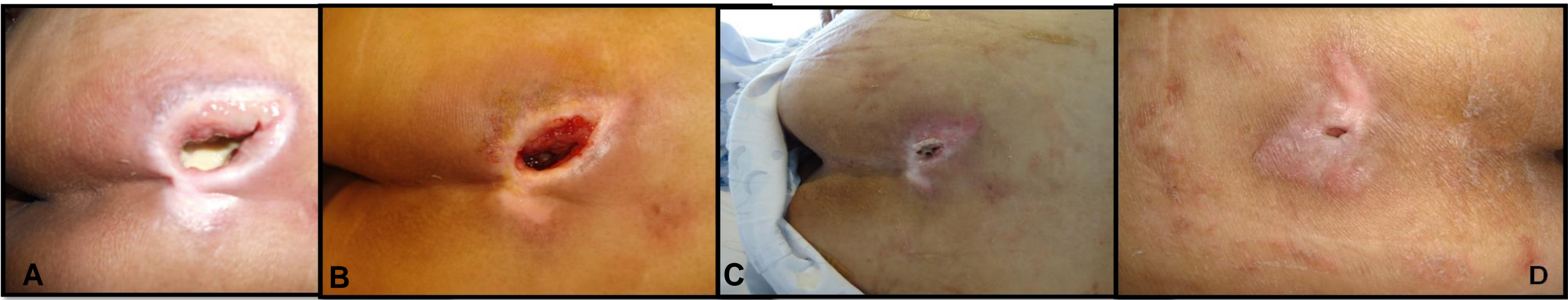


Figure 1. Change in wounds over time with PDRN administration (1)
The patient was a 77-year-old woman with a pressure ulcer over the coccyx. The wound size was 3.3 cm² and PUSH score was 12. (A) At baseline and after (B) 1, (C) 3, and (D) 4 weeks of treatment

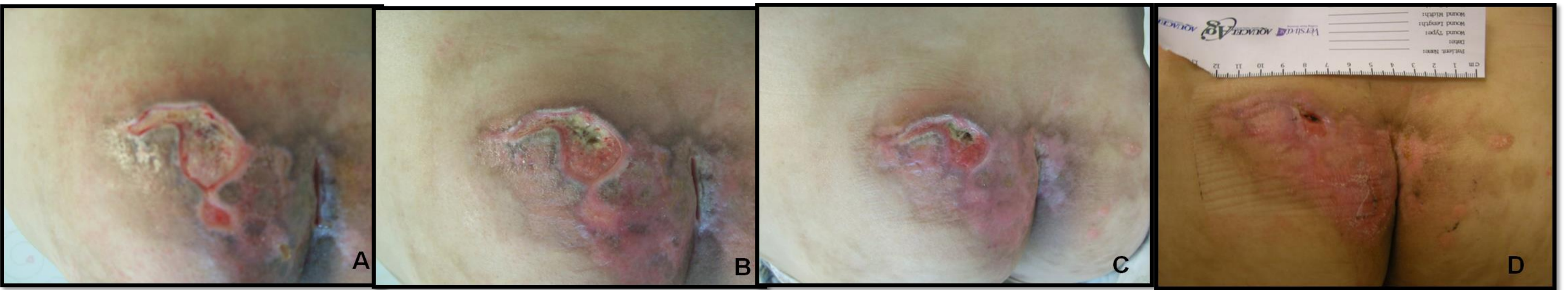


Figure 2. The patient was a 57-year-old man with a pressure ulcer over the buttock area. The wound size was 6.7 cm² and PUSH score was 13. (A) At baseline and after (B) 1, (C) 2, and (D) 4 weeks of treatment.

Result

Significant differences were found between the two groups in terms of the wound surface area: compared to the control group, the experimental group showed an increasingly significant decrease in this parameter over the course of treatment. The pressure ulcer scale for healing(PUSH) also showed significant differences between the groups: compared to the control group, the experimental group showed an increasingly significant decrease in the PUSH score with treatment.

Conclusion

The findings indicate that PDRN can positively help the wound healing process in pressure ulcers, and its use could improve the clinical outcomes of patients and lower the need for additional therapies or hospital stay