

Platelet Rich Fibrin (PRF) for hard to heal ulcers

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ABSTRACT

Goals and Objectives

Platelet Rich Fibrin (PRF) can be used to promote wound healing. However clinical experience is limited.

Purpose

We would like to discuss our results of application of PRF (Vivosat PRF, Birkerød, Denmark) in the first 13 treated wounds.

Methods

This is case-series of patients treated between september 2006 and august 2007 in our wound center.

Results

In total, eight wounds (62%) could be closed completely. There were no complications. [Steenvoorde et al. J Wound Care 2008 17(2): 60-63.

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Figure: application of the PRF in the outpatient clinic.

Introduction

Platelets are responsible for initiating wound healing. However, the number of platelets in blood is only 0.2x 10⁶/ul. In contrast, in platelet-rich plasma it is > 1.0 x 10⁶/ul. The use of platelet-derived wound healing formulae delivered in a crystalline collagen carrier was first published in 1986.

This pilot study of very hard-to-heal ulcers investigated whether treatment with autologous platelet-rich fibrin is feasible and to see if wound healing is improved.

Method

It was the intention to recruit only diabetic feet, but many other cases which seemed hopeless and didn't heal were included as well. All patients were over 18 years old and able to give informed consent. All recruited patients were recruited between September 2006 and August 2007 with chronic non-healing ulcers were recruited. All charts were retrospectively reviewed.

Results

Twelve patients with 13 wounds were included in the study (one patient had two wounds, which were treated simultaneously). The sample comprised four males and eight females with a mean age of 60.5 years (range 38–89). Patient and wound characteristics are given in Table 1. The mean wound duration before treatment was 15.7 months (range 1–48). All wounds were located on the lower limb, with the exception of a radiotherapy ulcer on the breast in a patient after she had been operated for breast cancer. This particular wound had been present for one year, pathological examination revealed no recurrence and a pressure ulcer grade IV (open wound on to the bone) on the trunk.

The 12 patients received a total of 29 treatments. The average no of applications of all treated patients is 2.2 (mean) application per wound. In total, with a short follow-up (1-12 months) eight wounds (62%) have closed, three wounds (pressure ulcers and two diabetic feet) were smaller than 1/3 of the initial size, although these are estimates only.

Table 1. Characteristics of patients treated with platelet rich fibrin

Pat. No.	Gender	Age	Wound type/patient	Wound duration prior to PRF (months)	No. of treat ment s	Outcome
1	Male	59	Diabetic foot ulcer after toe amputation	7	1	Closed
2	Female	75	Mixed arterial venous ulcer with calcinosis	36	1	No difference
3a	Female	42	Diabetic foot ulcer after toe/foot amputation	2	7	<1/3 of original wound size
3b			Ulcer after below knee amputation (DM)	1	2	closed
4	Female	67	Radiotherapy ulcer of the breast	12	2	closed
5	Male	65	Diabetic foot after metatarsal IV amputation	3	4	<1/3 of original wound size
6	Female	47	Pressure ulcer	36	4	<1/3 of original wound size
7	Male	38	Diabetic foot after toe amputation	8	2	Closed
8	Female	70	Diabetic amputation (DM, too	24	1	Closed
9	Male	79	Traumatic ulcer	3	1	closed
10	Female	48	Venous ulcer	12	3	Size is the same, now superficial
11	Female	89	Ischaemic heel ulcer	48	1	Closed
12	Female	47	Traumatic ulcer	12	1	Closed

Conclusion

It's difficult to draw a conclusion, for the small sample size, different included wounds and short follow-up. However this study does show that treatment with PRF in chronic wounds is feasible, for all application gave no problems, and no complications occurred. Healing rates in this pilot-study, in our opinion were very high (62%), regarding the fact that many patients were treated in our Wound Center for a longer period prior to this new therapy and that many cases with different aetiologies were included.

Many questions remain like indications, contra-indications, application-interval, which secondary dressings should be applied etc. However this study has shown that a positive effect could be expected. Further trials are warranted and should focus on a specific patient-group, which in our opinion should be the diabetic foot.

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