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87% of Wounds Improved or Healed after 4 Weeks of Treatment with Acellular Fish Skin - A Retrospective Study on 68 Wounds

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Table 1 - Wound etiologies and healing rate. Wound types treated with acellular fish skin graft* and healing progression after 4 weeks.

Wound type	Wounds treated	Improved	Healed	Not responding
Venous or mixed venous/arterial	27	19	6	2
Arterial	7	5		2
Diabetic	8	3	4	1
Surgical/Trauma	12	5	5	2
Pressure	6	2	3	1
Neurophatia	1	0		1
Other	7	6	1	0
	68	**40**	**19**	**9**

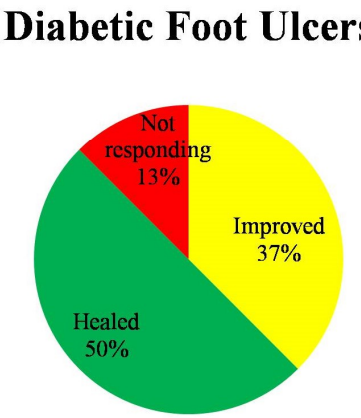

Figure 1 - Healing profile of diabetic foot ulcers after 4 weeks of treatment with fish skin grafts*

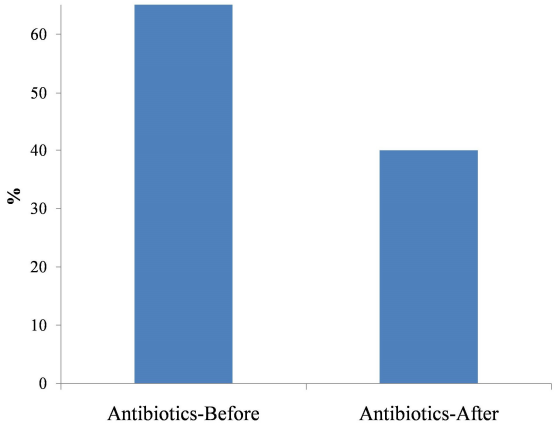

Figure 2. 38.5 % decrease in use of antibiotics after 4 week treatment with fish skin grafts*.

INTRODUCTION

The ominous outlook of explosive rise in the number of non-healing wounds globally, driven by; increasing age, obesity and diabetes, has increased acceptance of novel therapy options of non-healing wounds. Amongst those are fish skin acellular grafts*. Biologic membrane wound treatment products on the market today are either human derived or derived from domesticated animals such as pigs and cattle.

Human tissue products, such as amnion membrane products, call for extensive use of penicillin during processing as well as the use of other antibiotics to reduce bioburden and prevent bacterial growth during processing and storage. Processing of domesticated animal tissues calls for harsh chemical treatment to reduce viral-transmission risk leaving behind only a matrix of inactive collagen connective tissue.

Pathogen transmission risk from the Atlantic Cod (*Gadus morhua*) to humans is nonexistent. This lack of disease transmission risk allows for gentle processing of the skin, preserving its native intact structure as well as all chemical components, including proteins and fats (a portion being Omega3 fatty acids). The mucus of the fish skin is antibiotic eliminating the need for penicillin treatment for stabilization during processing. Furthermore fish skin is surprisingly similar to human skin in structure allowing for fish skin to be used in an homologous manner to treat human skin..

AIM OF STUDY

Investigation objectives included; studying the safety, efficacy and possible side effects of acellular fish skin grafts* on non-healing wounds in a retrospective clinical study.

METHODS

59 adult patients with 68 non-healing wounds in total were treated with acellular fish skin graft* for four weeks. Data was extracted from the patient records database (PRD) at the National University Hospital in Reykjavik, Iceland.

RESULTS and DISCUSSION

Of 68 wounds treated, 19 (28%) healed completely within 4 weeks and 40 wounds improved. 9 wounds did not respond to treatment (**Table 1**). No participant developed immediate; wheal, flare, itching or other adverse effect on the skin or body after contact with fish skin grafts*. No participant tested positive for the antibodies that cause fish allergy.

Venous or mixed venous/arterial wounds accounted for 40% of treated wounds and in that group, 93% improved or healed (**Table 1**).

83% of surgical or traumatic wounds healed or improved, 71% of arterial ulcers, 87% of diabetic origin (**Figure 1**) and 83% of ulcers caused by pressure.

No wound became worse in the course of the 4 week treatment with the acellular fish skin*.

After 4 weeks, antibiotics medication had decreased by 38.5% (**Figure 2**).

CONCLUSIONS

Acellular fish skin* is safe to use as a treatment for wounds. The acellular fish skin* does not induce allergic reactions or sensitivities and is effective on a range of different types of wounds. The natural Omega3 content of the fish could play a key role in the functions, including, antibacterial effect of the fish skin.

* Kerecis™ Omega3 Wound by Kerecis

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