

Available online at www.sciencedirect.com

ScienceDirect

journal homepage: www.JournalofSurgicalResearch.com

The use of skin substitutes and burn care—a survey



Paul Wurzer, MD,^{a,b,*,1} Hildegard Keil, MD,^{b,1}
 Ludwik K. Branski, MD, MMS,^{a,b} Daryousch Parvizi, MD,^b
 Robert P. Clayton, BS,^{a,c} Celeste C. Finnerty, PhD,^{a,c}
 David N. Herndon, MD, FACS,^a and Lars P. Kamolz, MD, PhD, MSc^b

^a Department of Surgery, University of Texas Medical Branch and Shriners Hospitals for Children, Galveston, Texas

^b Division of Plastic, Aesthetic and Reconstructive Surgery, Department of Surgery, Medical University of Graz, Graz, Austria

^c Sealy Center for Molecular Medicine and the Institute for Translational Sciences, The University of Texas Medical Branch, Galveston, Texas

ARTICLE INFO

Article history:

Received 12 August 2015

Received in revised form

2 October 2015

Accepted 30 October 2015

Available online 6 November 2015

Keywords:

Total body surface area

Skin substitute

Xenograft

Allograft

Autograft

Internet survey

Burn injury

ABSTRACT

Objective: The aim of our Internet survey was to assess the preferences of burn specialists who use skin substitutes in patients with burns covering 20% or more of their total body surface area (TBSA).

Methods: An open, voluntary Internet-based cross-sectional survey was performed. Responses to 19 noncompulsory questions, and participant career and location information were collected.

Results: One hundred eleven specialists from 36 countries responded to our questionnaire. Sixty participants were located in Europe (54%), followed by 31 (28%) in North America, 15 (14%) in Asia, three (3%) in South America, one (1%) in Africa, and one (1%) in Australia. The importance of skin substitutes in medium-sized burns (covering 20%–60% TBSA) was rated as “essential” by 28% and “desirable” by 56% of the respondents. In severe burns >60% of TBSA, 81% of responders rated the use of skin substitutes as “essential” and 14% as “desirable”. Skin substitutes were used in daily clinical practice by 96% of all participants. Biological and synthetic dressings were used by 53%. A majority (86%) think that biological dressings do not pose a risk to patients. Allografts represent the most frequently used wound coverage (51%), followed by xenografts (28%). All participants of the survey indicated that as of yet, there is no ideal skin substitute available.

Conclusions: Split-thickness autografts still represent the most used wound cover for definitive treatment of severe burns. However, creation and implementation of an ideal skin substitute have yet to be achieved and therefore should be the focus of future work.

© 2016 Elsevier Inc. All rights reserved.

Funding: No outside or intramural funding was obtained for this study.

* Corresponding author. Shriners Hospitals for Children, 815 Market Street, Galveston, TX 77550. Tel.: +1 409 770 6974; fax: +1 409 770 6919.

E-mail address: wurzer_paul@gmx.at (P. Wurzer).

¹ These authors contributed equally to this work.

0022-4804/\$ – see front matter © 2016 Elsevier Inc. All rights reserved.

<http://dx.doi.org/10.1016/j.jss.2015.10.048>

1. Introduction

The most important functions of skin substitutes are prevention of wound infection, retention of fluid, and replacement of normal skin to provide aesthetically and functionally pleasing results. The treatment of burn wounds requires the availability of wound dressings and skin substitutes that can be used under a wide range of conditions. Despite constant evolution in the development of skin substitutes, no single product stands out as the “gold standard” [1]. According to a recent survey by our group, practitioners around the world agree that currently no “ideal” burn dressing exists [2]. Depending on the severity of the burn wound, different materials are used. Allografts, xenografts, bovine and porcine collagen sheets, and dermal matrices are commonly used in burned patients; these products provide a nutritive bed that supports wound closure with meshed split-thickness skin grafts or meek grafts [3,4]. In recent decades, advances in tissue engineering techniques have provided a number of synthetic skin substitutes, including *in vitro* grown skin tissue or dermal matrices that can recruit local cells to stimulate scarless healing. These techniques, however, are expensive, not widely used, and therefore only serve as an adjunct to the use of split-thickness or full-thickness skin transplants [5].

For the treatment of partial-thickness burns, dressing regimens, such as Suprathel (Polymedics Innovations GmbH, Denkendorf, Germany) [6,7] and Biobrane (Smith & Nephew Healthcare Ltd., Hull, United Kingdom) [8] have emerged. The selection of dressings is dictated by the depth of the burn injury. Healing times were similar in patients treated with Biobrane and Suprathel, and overall scar quality did not differ significantly between the two [9]. When covering full-thickness burns, surgeons use dermal substitutes such as Matriderm (MedSkin Solutions Dr.Suwelack AG, Billerbeck, Germany) [10–12] or Integra (Integra lifesciences, Plainsboro, NJ) [13]. Animal studies have shown no significant differences in engraftment rates or vascularization between the two products [14]. The use of the aforementioned skin substitutes also provides treatment options for chronic skin injuries such as diabetic ulcers or pressure sores [15].

The availability of skin substitutes has increased in the recent years, and practitioners can choose from a variety of products with very different features that are suitable under particular conditions. The aim of the present study was to learn more about the treatment preferences of burn and wound care providers from around the world, to provide an overview of product features, and to delineate differences in the use of skin substitutes at different burn care clinics.

2. Methods

A total of 500 burn care specialists around the world received an email invitation to participate in a voluntary, online cross-sectional survey. A direct link to the online survey was included in the email [16]. The survey invitation was generated by a scientific nonprofit medical organization, the Austria Burn Treatment Research, and Prevention Study Group (www.abusg.com), together with experts from the burn community. Institutional review board study approval was obtained from IORG0002039—Medical University of Graz. Contact addresses for the burn centers to be surveyed were compiled by searching the Internet as well as the addresses of authors who have published in *BURNS* (Elsevier Science Ltd. for ISBI) between 2007 and 2011. Unique sessions were guaranteed by checking the Internet protocol address of each client computer and thus avoiding duplicate entries [17]. Respondents were not able to review or change their answers once entered. Responses were automatically logged in a MySQL-Database [18]. The survey website was monitored for technical difficulties and to ensure flawless performance on a daily basis. The respondents' Personal information of respondents was not collected, and no incentives for survey completion were offered.

2.1. Questionnaire

The questionnaire focused on the use of skin substitutes in the treatment of medium sized (covering 20%–60% of total body surface area [TBSA]) and severe burn wounds (covering

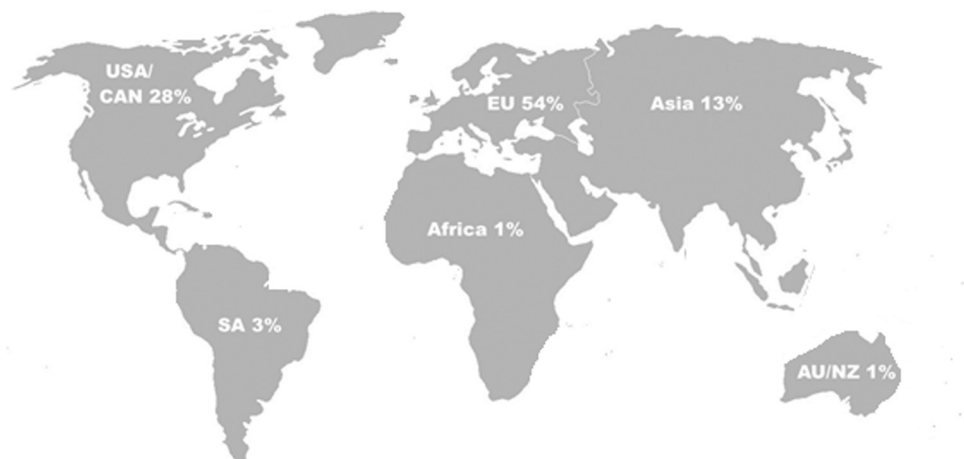


Fig. 1 – Worldwide distribution of respondents: United States of America (USA), Canada (CAN), South America (SA), Europe (EU), Australia (AU), New Zealand (NZ).

Download English Version:

<https://daneshyari.com/en/article/4299407>

Download Persian Version:

<https://daneshyari.com/article/4299407>

[Daneshyari.com](https://daneshyari.com)