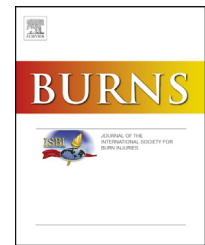


Available online at www.sciencedirect.com

ScienceDirect

journal homepage: www.elsevier.com/locate/burns

Long-term results of organ procurement from burn victims

Daniel Schmauss^{a,*}, Amir K. Bigdeli^b, Susanne Hellmich^b,
Ana P. Barreiros^c, Thomas Kremer^b, Günter Germann^{b,d}, Ulrich Kneser^b,
Kai O. Megerle^{a,b}

^a Department for Plastic Surgery and Hand Surgery, Klinikum rechts der Isar, Technische Universität München, Germany

^b Department of Hand, Plastic and Reconstructive Surgery, Burn Center, BG Trauma Center Ludwigshafen, Ludwig-Guttman-Str. 13, 67071 Ludwigshafen Hand and Plastic Surgery, University of Heidelberg, Heidelberg, Germany

^c DSO, German Organ Transplantation Foundation (Region Mitte), Haifa-Allee 2, 55128 Mainz, Germany

^d Department of Plastic, Reconstructive, Esthetic and Handsurgery, ETHIANUM Klinik Heidelberg, Vossstrasse 6, 69115 Heidelberg, Germany

ARTICLE INFO

Article history:

Accepted 12 May 2017

Available online xxx

Keywords:

Organ transplantation

Organ donor

Burn

Organ procurement

Marginal organs

Extended donor criteria

ABSTRACT

Background: With the increasing success of organ transplantation, many traditional contraindications to organ procurement are being reconsidered. Burn disease has constituted a traditional contraindication to solid organ procurement because of concerns that such organs may have been compromised by ischemia secondary to burn shock and contaminated by bacteremia. With the current shortage of solid organs, the transplant community continues to look for ways to increase the number of organ donors, including the use of marginal donors.

Methods: Between 1999 and 2009 we have successfully procured 14 organs from four burn patients, who had suffered concurrent anoxic brain injury. There were one male and three female patients with an average age of 43.3 years and a total burned body surface area of 32.5%. Organ transplantation was performed at an average of 4.75 days after the injury. Eight kidneys, three livers, two hearts and one pancreas were procured and transplanted into 13 patients.

Results: We were able to follow-up on the organ recipients for an average of 80.5 months. The 5-year survival of the donated organs following transplant was 78.6% and the 5-year organ recipient survival was 92.3%.

Conclusions: Organ procurement after burns is not contraindicated and transplantation can be performed with good long-term results.

© 2017 Elsevier Ltd and ISBI. All rights reserved.

* Corresponding author at: Klinik und Poliklinik für Plastische Chirurgie und Handchirurgie, Klinikum rechts der Isar, Technische Universität München, Ismaningerstrasse 22, D-81675 München, Germany. Fax: +49 0 89 4140 4869.

E-mail address: schmauss.daniel@gmail.com (D. Schmauss).

<http://dx.doi.org/10.1016/j.burns.2017.05.012>

0305-4179/© 2017 Elsevier Ltd and ISBI. All rights reserved.

1. Introduction

The transplantation of solid organs is an accepted and promising therapy for patients suffering from end-stage organ failure. In the United States more than 29.500 organs were transplanted in the year 2015 [1]. However, more than 121.000 patients were on U.S. waiting lists for an organ transplant in February 2016 [1]. As we can see, the availability of organs cannot meet the increasing demand, leading to an alarming shortage of organs. As a consequence, more and more transplant centers tend to accept extended donor criteria and “marginal organs” to treat end-stage heart, lung, hepatic or renal failure [2-7]. In renal transplantation, the transplantation of marginal organs has been shown to be beneficial compared to treatment with dialysis while being on the waiting list with a 5-year graft survival of 59% [8].

Burn has been traditionally considered a contraindication for organ procurement. The major concerns are contamination and bacteremia through burn wound manipulation and organ damage through burn shock-associated ischemia [9]. Reconsideration of this contraindication is still discussed controversially due to lack of evidence because only single cases of transplantations of organs procured from burned adult patients have been reported so far [10,11]. This study is the first to present long-term follow-up data on the outcome of transplantations of organs procured from burn patients.

2. Materials and methods

This study was performed according to our institutional ethical guidelines. From 1999 to 2009 14 organs from four patients with severe burns were procured at our burn center. We retrospectively extracted data from the patients' records including gender, age, total burned body surface (TBSA), date of both burn and transplantation, and which organs were procured. Clinical outcomes of the transplant recipients were then obtained from the national organ transplantation network (Deutsche Stiftung Organtransplantation, DSO), which approved the publication of the data.

The group of donors consisted of one male and three female patients with an average age of 43.3 years (range; 19-62 years) and an average TBSA of 32.5% (range; 18-56%) (Table 1). All patients were injured in domestic fires and required pre-hospital cardiopulmonary resuscitation (CPR). Fluid requirements were estimated by a modified Parkland formula and adjusted using standard resuscitation end points with continuous bedside monitoring [12]. All donors required vasopressors and external warming.

After clinical examination suggested brain death, formal neurology consultation was obtained and the clinical diagnosis was confirmed by apnea test and additionally by electroencephalogram according to current guidelines. This diagnostic workup was performed by independent examiners according to the German transplantation law. Families were informed of the diagnosis and the possibility of organ and tissue donation. In every case informed consent was sought from the legally authorized representative prior to transplantation. Other than the sustained burns, there were no contraindications for organ procurement.

3. Results

Organ transplantation was performed at an average of 4.75 days (range; 2-8 days) after burn. Eight kidneys, three livers, two hearts and one pancreas were procured and transplanted to 13 patients.

Table 2 demonstrates the recipient data. The recipients consisted of 5 female and 8 male patients with an average age of 50.6 years (range; 39-65 years). The mean follow-up was 80.5 months (range; 4-186 months) after transplantation. All patients received one organ except one male patient who received a kidney and a pancreas.

All recipients were alive when discharged from the hospital after transplantation. No infection was diagnosed perioperatively. There were two short-term complications: The pancreas had to be explanted after two days due to a venous thrombosis. A kidney recipient developed a thrombosis of the common iliac artery after the bifurcation and the renal artery of the transplanted organ after 14 days. Systemic lysis and stenting of the common iliac artery were performed. The transplanted organ was not harmed.

There were three long-term complications: One recipient of a liver developed Cytomegalovirus (CMV) pneumonia with Enterococcus faecium-superinfection and concomitant sepsis after 2 months and died 4 months after transplantation. The other liver recipient had a severe recurrence of his underlying hepatic disease and was listed for re-transplantation after 1 month. One patient who received a kidney had chronic rejection with organ failure and explantation of the organ after 16 months. Another kidney recipient tested positive for CMV. All other patients were CMV-negative over the follow-up period. After 5 years, the survival of the transplanted organs was 78.6% (Fig. 1).

Except the liver recipient mentioned above who died due to pneumonia and concomitant sepsis, one more patient died during the follow-up period: A kidney recipient died from a pulmonary embolism 12 years after transplantation. Until

Table 1 – Demographic data of the 4 burn injured organ donors. F=female; M=male.

	Age (years)	Sex	Burn size (TBSA %)	Organs procured	Days until organ procurement
Donor 1	47	F	29	Liver, 2 kidneys	4
Donor 2	62	F	18	2 kidneys	2
Donor 3	45	F	56	Heart, liver, 2 kidneys, pancreas	5
Donor 4	19	M	27	Heart, liver, 2 kidneys	8

متن کامل مقاله

دریافت فوری ←

ISIArticles

مرجع مقالات تخصصی ایران

- ✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
- ✓ امکان دانلود نسخه ترجمه شده مقالات
- ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
- ✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
- ✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
- ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات