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Evaluating an outreach service for paediatric burns follow up



Jonathan J. Cubitt^{*}, Amy Chesney, Liz Brown, Dai Q. Nguyen

The Welsh Centre for Burns and Plastic Surgery, Morriston Hospital, Morriston, Swansea SA6 6NL, United Kingdom

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ABSTRACT

Complications following paediatric burns are well documented and care needs to be taken to ensure the appropriate follow up of these patients. Historically this has meant follow up into adulthood however this is often not necessary. The centralisation of burns services in the UK means that patients and their parents may have to travel significant distances to receive this follow up care. To optimise our burns service we have introduced a burns outreach service to enable the patients to be treated closer to home. The aim of this study is to investigate the impact of the introduction of the burns outreach service and within this environment define the optimum length of time needed to follow up these patients.

A retrospective analysis was carried out of 100 consecutive paediatric burns patients who underwent surgical management of their burn. During the follow up period there were 43 complications in 32 patients (32%). These included adverse scarring (either hypertrophic or keloid), delayed healing (taking >1 month to heal) and contractures (utilising either splinting or surgical correction). Fifty-nine percent of these complications occurred within 6 months of injury and all occurred within 18 months. Size of burn was directly correlated to the risk of developing a complication. The outreach service reduced the distance the patient needs to travel for follow up by more than 50%. There was also a significant financial benefit for the service as the follow up clinics were on average 50% cheaper with burns outreach than burns physician.

Burns outreach is a feasible service that not only benefits the patients but also is cheaper for the burns service. The optimum length of follow up for paediatric burns in 18 months, after which if there have not been any complications they can be discharged.

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1. Introduction

Burn care can be expensive and protracted paediatric outpatient follow up can be an unnecessary addition to the costs [1,2]. Historically there has been a tendency to follow up children who have had a burn until they have reached adulthood through a fear of the development of burns related

complications, such as contractures [3,4], with growth. However recently it has been demonstrated that the majority of these complications occur within 18 months post burn [5,6]. This allows the rationalisation of follow up for the benefit of the child, their family and the health care provider. It helps normalise the childhood for the patient by reducing trips to hospital and time away from school. It reduces the number of days their parents may have to take time off work in order to

^{*} Corresponding author. Tel.: +44 7714265457.

E-mail addresses: jonathan.cubitt@wales.nhs.uk, Jonathan.cubitt@hotmail.co.uk (J.J. Cubitt).

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attend the outpatient appointments and reduce their travel costs. The reduction in outpatient attendances may allow resources to be utilised elsewhere within the burns service which may be financially beneficial.

1.1. The development of an outreach service

In 2013 our burns centre published our long-term experiences with hypertrophic scarring and contractures in paediatric burns patients [6]. In this paper we identified that children who develop complications post surgical management of a burn do so within 18 months. This research enabled us to significantly reduce the number of unnecessary follow up appointments our patients were having. To further improve our delivery of post hospital burn care we introduced a burns outreach team, staffed by a burns nurse practitioner and a senior occupational therapist. Our outreach follow up focuses on scar management and rehabilitation techniques and obviates the need for additional burns physician appointments. There is open and rapid access for patients to be seen by a burns surgeon if the outreach team identify this is optimal.

Prior to the development of the burns outreach service all children would be given a 3 month outpatient appointment with their consultant regardless of whether there was a clinical indication. With the development of the outreach service all children are seen by a member of the outreach team on discharge from the burns dressing room using the guidelines stipulated in Fig. 1. The purpose of this meeting is three fold: firstly, the patient is given a named key worker who they can contact should they have any concerns; secondly, any issues, be it physical or psychological that the patient is experiencing can be addressed, assessed and treatments commenced; finally, it is an important opportunity to revisit the first aid that was undertaken and discuss the correct first aid. Often this provides an opportunity for health promotion and to discuss their treatment from the point of the accident/incident through to the present day. Following this meeting further follow up is tailored to patient needs and either a follow up appointment is made or an open access appointment is given, where the parent can make an appointment should they encounter any problems.

1.2. The location of outreach clinics

The development of regional burn care and burns networks in the UK has meant that patients can travel significant distances to receive their acute hospital burns care. The introduction of the outreach service enables the subsequent care to be delivered closer to home [7]. The satellite clinics are spread out around the base hospital (Morriston Hospital in Swansea, Fig. 2): An outpatient clinic at University Hospital of Wales (UHW), Cardiff (once a week, 43 miles from base hospital); an outpatient clinic at Brecon Memorial Hospital, Powys (fortnightly, 40 miles from base hospital) and in 2 locations in Camarthanshire, an outpatient department in Glangwilli Hospital, 28 miles from base hospital and a GP practice 38 miles from base hospital, both visited fortnightly). If the patients live closer to the satellite clinic than the base hospital then they are offered follow up there. The clinics in UHW and

Glangwilli run parallel to a plastic surgical clinic and therefore consultant input is available if needed.

The aim of this study was to investigate the impact of starting a paediatric burns outreach service and to re evaluate the optimum length of follow up for paediatric burns.

2. Method

This study was carried out at the Welsh Centre for Burns, Morriston hospital, which is an adult burns centre and a paediatric burns unit for the South West UK Burns Network. The Burns Database (Phoenix) was used to identify 100 consecutive paediatric patients who had their burn managed surgically. These were deemed as a high risk group for development of post burn complications. A retrospective note review was carried out and data was collected on patient demographics, burn characteristics, surgical intervention, follow up and complications. Statistical analysis was carried out using Excel and GraphPad software.

3. Results

The 100 patients included 71 male patients (71%) and 29 female patients (29%). The median age was 5 years (0.7–16.9), with a bimodal distribution as demonstrated in Fig. 1: a large peak at ages 1–3 years and another, smaller, peak 15–16 years (Fig. 3).

The cause of burn is shown in Fig. 4. As expected in a paediatric burns group, scalds were the commonest cause of burn (33%). The median total body surface area (TBSA) was 4% (1–31%) and the majority of burns (87%) were <10% TBSA. Fifty-three percent of burns were located on the upper limb, 36% on the lower limb, 21% on the thorax and 14% on the head and neck. Eighty-seven percent of burns were treated with a split thickness skin graft (SSG), 10% a full thickness skin graft (FTSG), 1% with both SSG and FTSG, 1% with SSG and dermal substitute (Integra) and 1% underwent a cross finger flap.

3.1. Complications

Complications were defined as either delayed healing (taking >1 month to heal), adverse scarring (either hypertrophic or keloid) or contracture formation (utilising either splinting or surgical correction). Overall there were 43 complications in 32 patients (32% of patients overall). Adverse scarring was the most common complication with 27 patients (84% of patients with complications) suffering from either hypertrophic or keloid scars. Fourteen patients (44%) suffered scar contractures which included contractures across joints, as well as web creep (1 patient) and ectropion (1 patient). Two patients (6%) suffered from significant delayed healing (defined as time to healing >1 month). The anatomical distribution of the complications is demonstrated in Fig. 5. Most complications were apparent within 6 months of the original injury (19 patients, 59% of patients with complications) with all complications presenting within 18 months.

The incidence of adverse scarring was greatest in the head and neck with 50% of all head and neck burns (7 patients)

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