RESULTS

Early wound closure is associated with the best scar outcomes following burn injury and early surgical intervention has a role in reducing depth progression in thermal injury. However, early debridement and split-thickness skin grafting (STSG) may ‘over-treat’ some patients and will result in scars associated with the debridement and graft. Biobrane in isolation has been shown to be effective in the treatment of superficial burns, but less so in deep injuries. ReCell with Biobrane may extend the application of the biological dressing, and allow early wound closure in even deep burn wounds treated with debridement, application of cell suspension and biological dressing.

METHODS

A retrospective review of the senior author’s patients (paediatric and adult) managed with early debridement, Biobrane and ReCell between 2010 – 2013 was conducted. All mid to deep dermal burns likely to need surgical intervention, and treated with debridement, Biobrane and ReCell within 48 hours of injury by the senior author were included. Vancouver Scar Scale (VSS) score was calculated by rating the worst and best areas of the scar, and producing a mean. 3 independent allied burns professionals, blinded to the treatment, scored the wounds.

RESULTS

18 patients were included in the study and 11 were children (61%). 10 paediatric burns were scalds and 1 was a flame burn. 5 adult burns were flame and 2 were contact burns (Fig. 1). Mean total body surface area (TBSA) of burn wound was 6.5% in paediatric cases and 12.7% in adults.

Table 1. Mean total body surface area and Vancouver scar scale scores.

<table>
<thead>
<tr>
<th></th>
<th>Mean TBSA</th>
<th>Mean VSS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adults</td>
<td>12.7</td>
<td>3.4</td>
</tr>
<tr>
<td>Children</td>
<td>6.5</td>
<td>2.8</td>
</tr>
</tbody>
</table>

DISCUSSION

The early surgical management algorithm of the burn wound, advocated by the authors [Fig. 2], aims for early wound closure and optimal scar outcomes. Wound healing taking longer than 21 days is known to be associated with poor outcomes and hypertrophic scarring, and early intervention aims to avoid this. ReCell has demonstrated comparable cell demographics to normal skin with a high viability. Importantly, ReCell harvests a pool of melanocytes unlike cultured epithelial autografts where it reduces with time. Its melanocyte population may be significant to produce effective pigmentation of wounds, which has been observed in this series.

CONCLUSION

ReCell and Biobrane is a feasible and reliable technique in burn surgery. In conjunction with surgery within 48 hours of injury, it is effective at producing early wound closure with one operation. This technique promotes early epithelialisation and pigmentation outcomes are good.

Ongoing, multi-centre randomised studies are encouraged to allow more patients to benefit from these evolving techniques.

REFERENCES


Fig. 1. Burn wounds 24 hours and 6 months post injury.

Fig. 2. Algorithm of early surgical management for burn injuries.