

Scars, Burns and Healing

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It is truly exciting to edit what is both the world's only scar journal, but also the world's only open access burns journal published by a major league publisher – and with 50 years of pedigree at that.

In this print edition, we are presented with some interesting and somewhat controversial perspectives. Controversy is the life blood of publishing, and two articles on colloid resuscitation from London and Swansea in the UK certainly deliver on that front, presenting interesting insights into the potential advantages and disadvantages of colloid regimes. On one hand, we have a new hypothesis that colloid resuscitation may impact on skin graft take,¹ which is certainly a new perspective that had a mixed reception from the seven peer reviewers of that paper. Similarly, another perspective is the use of colloid resuscitation after the first 8 h of crystalloid² and indeed not dissimilar to an 'albumin rescue' regime we use in my unit. The pervasive problem in the burns literature of statistical power combined with multiple uncontrollable variables and gaps when looking at burns data for relatively small numbers of major burns unsurprisingly permeates both papers. I view them as starting points for further research rather than final destinations, and the articles are the subject of a helpful critique by Dr Tridente.³

Going nuclear: should we ditch fluid resuscitation formulae for burns prior to arrival in a burns service?

Talking about fluid resuscitation and controversy, we can push the nuclear button with the following question: do we need resuscitation formulae at all in the acute setting prior to arrival at a burns service? It could be argued that the typically inaccurate fluid resuscitation calculation is an unwelcome

distraction in pre-hospital and pre-burns-unit care, and that other factors such as maintaining body heat and evaluation for other co-existent injuries and rapidity of transfer to definitive care are possibly compromised. Discrepancies between initial estimates of burn size and actual TBSA (determined at the burn unit) have long been reported in the published literature which contributes to a considerable margin of error in fluids administered in the acute setting. First, the most basic and commonly used resuscitation using Parkland's formula has an in-built margin (of 'error?') of 25% (3 mL/kg/% to 4 mL/kg/%). This 25% range is then compounded by the significant and widely published errors when estimating TBSA that we see regularly on the front line – even in the presence of widely accessible and validated tools to simplify this process.⁴ These cumulative errors can lead to a 50–100% under- or over-estimation of fluid requirements, as extrapolated from the published literature, such as the conclusions of Chan et al.⁵ who found that burn size was more likely to be overestimated than underestimated by a ratio of 2.2 to 1 especially in burns >10% TBSA-B ($P = 0.002$). Similarly, the errors found by Freiburg et al.⁶ were significant and surprisingly high in some instances: The mean difference in intravenous fluid administered prior to admission to the burn centre and the Parkland formula guideline was an excess of 554 +/- 1099 mL for small burns and a deficit of -414 +/- 2081 mL for larger burns ($P = 0.03$, Wilcoxon's rank-sum test). Harish et al.⁷ and Goverman et al.'s⁸ studies underscored these significant discrepancies in fluid calculations, and Swords et al.⁹ showed nearly 50% of patient's TBSA were overestimated by 5% or greater, and burn sizes were overestimated by up to 44% TBSA. There was also a statistically significant relationship between overestimation of TBSA by 5% or greater



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and over-resuscitation by 10 mL/kg or greater ($P = 0.02$).

In addition to these margins of error, the fluid requirements themselves are then adjusted at the front line based on other factors including urine output and co-morbidities. One wonders, therefore, could a one-size-fits-all pre-specialist fluid resuscitation regime be of benefit? Could it direct the system towards more rapid transfer of patients to a specialist centre, and could it improve other aspects of care such as reduction in hypothermia? What might such a fluid regime look like? One to one-and-a-half litres of crystalloid for everyone within 2 h of a burns centre? Could this simplify burn care and change the focus to 'get them to the burns unit on time!?' I look to the readership to explore this concept further and run with it (or kill it), preferably within the pages of this journal.

Social media in academic publishing, and the power of open access

The power of social media in publishing is considerable, and indeed has led to the development of tools not dissimilar to the Impact Factor to gauge social media impact of research, known as altmetrics.¹⁰ Altmetrics as a search term currently has 27 results on a PubMed search – I suspect there will be an exponentially increasing trend (or is 'trending' more apt?).

To this end, I note with interest that the article published in these pages by the Chelmsford team on assaults from corrosive substances¹¹ has had 37,000 tweets and despite the youth of this journal was cited both in *The Times* newspaper and on national *BBC Radio*. The interesting article entitled: 'Can tweets predict citations?'¹² eludes to the implications this has: the power of open access publishing includes the ability to tap into this increasingly important stream of disseminating knowledge rather than to a small subscriber base. Similarly, an article in *PLoS One* concluded:

*'The results provide strong evidence that six of the eleven altmetrics (tweets, Facebook wall posts, research highlights, blog mentions, mainstream media mentions and forum posts) associate with citation counts, at least in medical and biological sciences and for articles with at least one altmetric mention...'*¹³

Furthermore, I can see much of the published content of this journal being very helpful as a patient information resource, and our open access credentials pave the way for and, indeed, encourage

this. The article on hair transplantation for burn scar alopecia in these pages is a prime example.¹⁴

As a final perspective on open access, we all encounter the clear advantage of open access publishing when after a PubMed search we simply click on the 'Free PMC' button to download the article without needing a subscription or an account. Researchers are now increasingly pressured to publish research funded by charities or grants as open access, and factor publishing costs into grant proposals. We ourselves are fortunate to have articles subsidised by a charitable partner.

Publishing 'citeable' software: a new frontier

As a parting shot, we have what I think is a world first in this arena – publication of software as a citable journal article or 'entity': an Excel spreadsheet template that calculates the previously published CUSUM method for prospectively calculating burns mortality and outlier data. This software tool is available via a direct link from the published online pdf article that accompanies it within these pages. Other specialties such as cardiac surgery have used such methods to present national data and flag outliers early, and there is likely to be a move towards this across other surgical specialties in the UK and beyond. This software tool is free for anyone to download and use.¹⁵ We welcome submission of similar software tools with accompanying articles that can benefit or interest the readership, and other innovative content including videos and Apps.

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