

## Commentary on Military Cold Injury

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This paper, written a year following the Falklands War and published in the JRAMC in 1984, explores some of the reasons why some soldiers succumbed to cold injury during the campaign. It asks the question why some were affected while their comrades-in-arms, who were exposed to the same conditions, were not.

In this day of publication bias (of positive studies) it is refreshingly negative in its results, as all the suggested haematological abnormalities the paper set to explore were not in fact present in the subjects. Although the modern day soldier is better equipped and less likely to sustain cold injury than 25 years ago, it is still a very real risk in austere environments particularly when other hostile factors are present.

There are parallels to be drawn with other forms of environmental illness, in particular heat-related illness. It is still not fully understood why one soldier is more likely to suffer one of these environmental medical problems than those around him. However, there have been advances in knowledge of how hypothermia affects other conditions, in particular the detrimental effects in multiple trauma patients with ongoing haemorrhage, and potentially beneficial effects following cardiac arrest.

The disastrous effect of cold in trauma patients where there is ongoing haemorrhage contributes to the lethal triad of hypothermia, acidosis and coagulopathy. Mortality in patients who fall into this group is high.

There is now reasonable evidence to suggest that whole body

cooling following cardiac arrest improves survival, due to a reduction in cellular oxygen demand and metabolism. The same could be surmised from the anecdotes from the same period as this paper, of penetrating trauma victims during the Falklands conflict, where a self-selected group of patients survived in the cold of the South Atlantic winter for hours without formal resuscitation or critical care treatment. This group had presumably stopped bleeding through tamponade (or other mechanisms) and therefore the effects of the hypothermia were of benefit in slowing metabolism and tissue metabolism without causing continuing haemorrhage due to adverse effects on the coagulation cascade.

However, we are now into the realms of conjecture. Returning to the topic of this paper, in 1984 we were no nearer to the truth about why some are affected by cold while others are not. I wonder if modern science has brought us any further to an answer.

For an up to date summary of the topics of cold injury and hypothermia, I would recommend the special edition of this journal dedicated to Medicine in Hostile Environments (December 2005). As the title of one of these papers says, cold still kills.

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