



Modern military surgery

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This paper by Brown et al provides a fascinating and informative overview of the latest trends in military surgery to deal with the large number of horrendous lower limb and pelvic injuries resulting from the increased use of Improvised Explosive Devices (IEDs) by the Insurgents in Iraq and Afghanistan. These produce a new type of high energy injury characterised by massive contaminated bone and soft tissue destruction combined with major blood loss. The authors document a remarkable survival rate of over 55% in 530 patients with Injury Severity Scores of >16. Much of this success is attributed to the early control of external haemorrhage by the use of tourniquets and improved field dressings applied by the military personnel themselves. This 'buddy' system of advanced first aid care was first used by the US Special Forces in Vietnam with two soldiers in each Combat Team of 12 given extra training in advanced medical care. When this improved first line care can be backed up with rapid evacuation by helicopters, staffed with a Medical Officer as well as Paramedics and equipped as a Resuscitation Room in the air, more patients can be saved. The impact of these policies on the morale of ground troops is dramatic, as documented in much of the non-medical literature describing the campaigns in Helmand Province. The view of the soldier is that if his colleague is alive when loaded onto the helicopter they will survive. However, it does depend on air superiority which may not be the case in all future conflicts and may at times be tenuous in the face of ground to air missiles.

The other major factor in improving outcomes and survival was the proximity of a multidisciplinary and fully equipped surgical hospital at Camp Bastion to receive the casualties. In previous conflicts advanced surgical teams have been deployed near to the front line, but these never had the luxury of embedded transfusion laboratories and diagnostic imaging with CT scanning. Clearly a great deal of research has been undertaken on the resuscitation techniques with an emphasis on the use of massive whole blood transfusions with platelets and cryoprecipitate. This switch away

from blood substitutes and plasma expanders is interesting, though may be harder to introduce in civilian practice with the fall-off in blood donations.

The lessons of adequate wound debridement and secondary wound closure have to be relearned by new generations of military surgeons at the beginning of every war. They are key components in managing these high energy injuries and their associated open fractures. The shift in military practice to the use of external fixators for fracture stabilisation has not proved as successful as first hoped. This has resulted in some return to the use of plaster combined with other methods, even including the 'old fashioned' Thomas splint. Another 'return to the past' is their advocacy of pelvic binders for the initial control of unstable fractures prior to the application of a definitive external fixator; perhaps a lesson for civilian practice.

What are some of the other lessons for civilian trauma surgeons in the United Kingdom?

- Improved skill training for Ambulance paramedics, particularly in the control of bleeding.
- Rapid recognition and evacuation of the patient with severe multiple injuries to a fully equipped and staffed Major Trauma Centre, ideally by helicopter. These Centres would require senior involvement with full-time Consultant cover available on site as part of the initial treatment team. (This may sound fanciful in today's world, but was the norm at the Birmingham Accident Hospital when I worked there in the 1960s).
- The need to use the well-documented agreement of two experienced surgeons, in addition to less reliable scoring systems, for decisions on the need for limb amputation.
- Improved supplies of fresh blood, which would need more political backing for the Transfusion Services – and in an ideal world everyone should know and carry their blood group.
- Cross-training between the civilian and military services for young trainees in Trauma Surgery. This is particularly important now that the Army Medical Services are so reliant on Reservists to maintain their overstretched capability.

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