Military casualties present specific challenges, requiring changes to routine practice, policy and procedures.

Caring for critically injured soldiers

The need for psychological support is explored because this is one of the most challenging aspects of caring for military casualties and their families.

Royal Centre for Defence Medicine

Military and NHS nurses have been working together at the Royal Centre for Defence Medicine (RCMD) since its relocation to University Hospitals Birmingham (UHB) Foundation Trust in 2001. The move followed the closure of military hospitals in the UK.

The UHB was chosen because it was a regional burns and trauma centre and it was near to Birmingham International Airport. All British military casualties and entitled personnel affiliated with the British Armed services are repatriated to this centre.

There are 42 military critical care nurses based across critical care services at the trust, as well as military staff working in various roles. The military nurses work with NHS staff.

It is important that civilian nurses understand the pressures of working in a field hospital and patients’ experiences.

The unit manager from Selly Oak critical care spent three months in 2009 working in the intensive care unit in the field hospital at Camp Bastion as part of Op HERRICK, aided by the NHS Support to Operations initiative. During this visit, she was able to provide educational support for nurses involved in managing burns or major trauma. Following this, two more members of staff from critical care have been to Camp Bastion.

This experience is invaluable not only for the individual nurses but also for the rest of the team because they receive feedback and see photographs of conditions in the intensive care unit in Camp Bastion. This increased understanding between staff of their roles encourages empathy towards military personnel and patients.

Managing the impact of injured troops in a civilian hospital

UHB is unique in the number of injured military personnel it treats. On occasions, our critical care unit has accommodated up to 11 critically injured military patients – the standard capacity of this unit is usually 15 – in addition to serving the Birmingham area.

Patients arrive directly at the unit and it is common for two or three injured soldiers to arrive together; as many as six patients have been admitted at the same time. In this situation, organising critical care beds and staffing can be compared with managing a major incident. Patients who are fit for discharge to the wards will be identified and extra beds will be opened where possible, with extra staffing provided by both the trust and military.

The trust and its staff have become an integral part of military operations and policies so, when plans are put in place for a new military operation, the trust has prior warning to allow forward planning. This means additional injured troops can be cared for while the trust continues to provide a full service to the people of Birmingham and surrounding areas.

Blood supplies

Support services within the trust, for example the blood transfusion service, have...
Innovation
Nursing Practice

5 key points

1 It is important that civilian nurses understand the pressures of working in a field hospital and patients’ experiences.

2 Severe blast wounds can remain open for many weeks requiring regular monitoring and inspection. Surgical debridement may be needed every two to three days. Topical negative pressure can be a useful technique for these severe wounds.

3 Rigorous infection control measures, including the use of full length protector gowns, are crucial to minimise the risk of cross infection.

4 Military patients should be oriented to place and time as quickly as possible so injuries can be explained and understood.

5 Staff support sessions are helpful because of the severity of injuries that they deal with and their impact on the patient and their family. Visits to the military rehabilitation centre can help staff to see patients progress in the longer term.

Supporting military casualties

- Most war injuries occur as a result of blasts sustained by an activated improvised explosive device, commonly known as a landmine.
- Many of the soldiers are amputees and neuropathic pain is a major problem.
- Injured soldiers require nutritional support to cope with the massive catabolism associated with critical injury.
- Patient diaries are provided to all sedated critically injured military patients; these help soldiers understand what has happened to them.
- Patients may be disorientated as they wake up from sedation and this may be accompanied by flashbacks of their experiences, the incident or colleagues being injured.
- Getting back into military routine helps rehabilitation - having a haircut and shave, and/or wearing the uniform or parts of it, helps to regain identity.

Royal morale booster

- Visits from the royal family - the Prince of Wales, Prince Edward, Prince William and Prince Harry have all visited - help to boost morale among the patients and their families.
- Having the chance to tell their story to people who genuinely care about what they have been through - knowing that they have taken time out of their busy schedules - means everything.
- If a patient is sedated, a message will be left in their diary for them to read when they wake up.

adapted their practice to meet the dynamic demand of caring for military personnel.

The multiple blood transfusions received by the soldiers in the hours following injury, in addition to frequent repeated transfusions, can lead to the development of antibodies. In these circumstances, patients need a fresh cross-match specimen every 24 hours to prevent transfusion reaction.

If a number of critically injured military personnel are repatriated together, the requirement for blood products – for both planned surgical interventions and ad hoc transfusions – increases the laboratory workload. To meet this demand, staff in the blood bank are supported by three military biomedical scientists. If large amounts of blood are required overnight, the hospital’s supply of O negative blood can be used; there is also a trauma technician on call who can prepare more blood in the event of an emergency.

Immediate care

Military patients admitted to UHB usually have battlefield injuries sustained as part of Op HERRICK in Afghanistan and previously Op TELIC in Iraq.

Injured soldiers are evacuated from the battlefield by the medical emergency retrieval team – consisting of doctors, nurses and paramedics – and taken to the nearest field hospital to be stabilised and receive emergency surgical intervention. Following assessment, arrangements for repatriation to the UK can begin.

Details of patient injuries and recent vital signs are faxed to RCDM along with the estimated time of arrival. The critical care air support team is deployed from the tactical medical wing at RAF Lyneham to retrieve the patient. The team consists of two RAF ICU-trained nurses, a consultant anaesthetist, a medical technician and an RAF flight medic.

Specialist medical teams are notified in advance, including surgeons from trauma and orthopaedics, burns and plastics, general, and cardiac and vascular specialties. They are on standby for the patient’s arrival and extra theatre facilities are prepared for immediate use. Primary and secondary investigations, including CT scans carried out at the field hospital, are saved on a CD and transferred with the patient.

Once patients arrive at UHB and are stable the priority is to change all invasive lines using strict asepsis. After assessment by the relevant surgical teams, it is imperative that the patient goes to theatre for a thorough examination.
and treatment of all wounds. Traumatic amputations managed in the field hospital will require cleaning and revision to minimise potential necrosis and infection.

Injuries
Most injuries occur as a result of blasts sustained by an activated improvised explosive device (IED), commonly known as a landmine. Activation may have been by foot or vehicle and the mechanism will impact upon the severity of injuries sustained. Other injuries result from gun shots, rocket propelled grenade attacks and occasional road traffic collisions.

The most common injury resulting from an IED is traumatic or immediate surgical amputation of the legs. Shrapnel is blasted upwards and outwards and can cause extensive damage, including abdominal injuries, trauma to upper limbs including amputation, extensive soft tissue damage and/or burns, bony fractures from being flung away from the blast and facial injuries, including penetrating eye injuries.

Although staff are working in a regional trauma centre, the care of wounded soldiers has provided a steep learning curve for all team members. Wounds need to be constantly inspected and remain open for long periods of time, often for weeks after injury. The patient may require surgical debridement every 48–72 hours.

Managing open wounds between surgical episodes is challenging. Topical negative pressure (TNP) therapy has been widely used with chronic diabetic ulcers (Jones et al, 2005), and has been very successful with this patient group. Our experience with military personnel has led to further development of TNP equipment to treat large acute wounds – an advance in technology that is now available to all patients. This is illustrated in Fig 1 and Fig 2.

The types of wounds dressed with TNP vary from open stump wounds to open abdominal wounds; it is not uncommon for one patient to have both of these. The addition of external fixators for pelvic or leg fractures can further complicate these wounds, and skill is needed to position the leg fractures can further complicate these wounds. The incidence of colonisation or infection of MDR Acinetobacter is less common now, but we still maintain precautions for possible growth to be identified.

In critical care, full length protector gowns (including full length sleeves) are worn by all clinical staff who are examining military patients. The protector gowns are unpleasant to wear for long periods so nurses caring for such patients wear ordinary plastic aprons in their own bedspace, and a protector gown if assisting in a non-infected bedspace, although this is discouraged where possible. If no multi resistant infections have been isolated after seven days, this higher level of personal protection can be stepped down.

Patterns of infection can be largely attributed to the area where military operations are being carried out. MDR Acinetobacter was more prevalent in the desert areas of Afghanistan; lately, operations have moved to farmland areas and, again, this is reflected in the clinical presentation of wounded soldiers. All patients from this area are immediately started on an antifungal regimen and are reviewed daily by a consultant microbiologist.

Patients are screened for a variety of tropical diseases in addition to our routine screening programme. During the malaria season (May to November), they will also receive antimalarial prophylaxis for four weeks.

Pain management
Many of the soldiers are amputees and neuropathic pain is a major problem (see article on page 21 for more information on phantom limb pain). The acute pain team has developed a successful regimen to treat pain from these injuries.

On the first day of their repatriation, these patients are prescribed amitryptiline and pregabalin, and the dose is adjusted over time. These drugs will be started even if the patient is sedated to allow a therapeutic level to be reached. In addition, they will also be prescribed regular paracetamol, tramadol, and possibly codeine. This regimen is also helpful for brachial plexus injuries from gunshot wounds.

Sciatic nerve blocks have been used in the field hospital to manage pain associated with bilateral leg amputation. These can be left in place for three to four days and are helpful while waiting for the oral analgesic regimen to take effect. Patient controlled analgesia is also helpful in patients who can use their hands.

Nutrition
Injured soldiers involved in active duty may have very little reserve to cope with the massive catabolism associated with critical injury.

Early nutritional care is important and feeding will be started as quickly as possible following arrival at UHB. Where abdominal injuries are present and a considerable delay to feeding is expected, alternatives – including total parenteral nutrition – are considered. Facial injuries may rule out nasal or oral feeding;

In the early phases of the Afghanistan war there was a high incidence of infection with multi drug resistant (MDR) Acinetobacter in IED wounds, symptoms of which were evident by the time patients reached the UK. Acinetobacter is a Gram negative bacterium that is found in drinking and surface waters, soil, sewage and various types of foods.

Isolating or cohorting these patients was important but several factors, including the number of infected patients and the high numbers of visitors, prompted a revision of infection control policies to minimise cross infection. This was achieved by small changes, such as limiting the number of people entering a bed space to two at any one time. This change was prompted by large ward rounds – military ward rounds can involve 11 clinicians at once.

Some bedsasses are also demarcated with lines on the floor to discourage staff from entering unless absolutely necessary, and providing a physical reminder to put on an apron and gloves where appropriate.

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alternative routes including per gastric or jejunal feeding may be required.

All military personnel are started on a high protein feed, which is increased to full rate as quickly as possible following the trust’s enteral feeding policy. Enteral feeding is continued throughout surgery and other interventions where the patient is intubated and has a protected airway. Surgical spells can last eight hours or more, which is a significant period of time to be starved when already in a catabolic state.

Psychological care

The majority of military critical care patients are sedated and ventilated so our initial efforts focus on the psychological support of family members, some of whom have had to travel considerable distances and many have the added distress of leaving young children with friends and family.

Accommodation is provided in flats refurbished by the military specifically for this purpose, or in hotels. There is a wide military support network for the families, which is often referred to as the “military bubble”. The Defence Military Welfare Service, which is made up of civilians from the Red Cross, provides support to the next of kin and the immediate family. A visiting officer is nominated from the injured soldier’s unit to escort the next of kin to Birmingham and provide family support throughout the hospital stay. Military liaison officers based at the RCDM headquarters provide a vital link between the injured soldier and their unit.

The military duty critical care nurse has a vital role, offering a point of contact for families and providing the interface between welfare and hospital staff while the patient is unconscious. Daily military patient activity report meetings are held to bring together the clinical, welfare and administrative patient care pathways to ensure maximum care and support. This meeting also plans onward rehabilitation and discharge planning with the rehabilitation coordinating officer and the military discharge coordinators.

Military nurse coordinators are also based at RCDM HQ. Their role is to obtain family contact details and try to develop a holistic care package for injured soldiers. They provide condition feedback at daily military meetings so rehabilitation and discharge plans can be started.

Condition feedback is also provided at the weekly joint telephone case conference, which is attended by military and civilian clinicians as well as clinical/military staff at the permanent joint headquarters at Camp Bastion and Kandahar, and the Aeromedical Evacuation Control Centre at RAF Brize Norton. Patterns of injuries may be discussed to identify areas for improvement, for example, changes to body armour.

Patient diaries

Patient diaries are provided to all sedated critically injured military patients. Entries will begin as soon as possible in Camp Bastion and are written in everyday language. They are a useful tool for documenting key events and present an opportunity for visitors, such as colleagues and friends, to leave messages.

There is evidence that diaries can have a positive effect on psychological recovery from ICU experiences, allowing people to gain a sense of coherence following their critical illness (Engstrom et al, 2009).

Flashbacks and hallucinations

Patients may experience disorientation as they wake up from sedation and this may be accompanied by flashbacks of their experiences, the incident or colleagues being injured.

There are degrees of flashbacks, from disorientation that simply requires reassurance to more severe hallucinations. Patients may believe they are being held captive by the Taliban, reach for weapons or try to jump out of bed to escape.

Sleep deprivation may be a problem, as soldiers in the field usually sleep for only a few hours at a time between watches. Getting back into a good day to night sleeping pattern can improve their psychological state in the acute phase of injury.

Soldiers should be oriented to place and time as quickly as possible so injuries can be explained and understood; the loss of sight, for example, could exacerbate feelings of fear and disorientation.

Where possible, family will be present to support the patient when the injuries are explained for the first time. Military community psychiatric nurses are available to provide support to the patients and ensure they receive their mandatory post operational stress debriefing.

Regardless of the severity of soldiers’ flashbacks or distress at the situation they find themselves in, they are undoubtedly helped by being with their colleagues – other soldiers with similar stories and injuries.

While we provide treatment in ICU to aid their recovery, it is not until they go to the ward and spend time with other soldiers that their psychological recovery really starts. Getting back into their military routine also helps – having a haircut and shave, and/or wearing the uniform or parts of it, help to regain some of their identity.

Staff support

Staff support is available to all members of the team caring for critical care patients because of the severity of the injuries they encounter and the intensity of emotions from family members. Staff develop a rapport with families, which makes tough situations, such as the death of a soldier, extremely difficult to accept.

Staff support sessions from trust counselors have had a good uptake, as do group sessions. Simply having the opportunity to discuss specific experiences, how they felt in that situation and having support from other colleagues who also felt the same way has proved beneficial.

Visits to the defence military rehabilitation centre at Headley Court boost staff morale by providing an opportunity to have an informal trip away from work, and to catch up with former patients and observe their progress. Seeing patients months later learning to walk with prostheses and having a positive and determined outlook on life is wonderful. It is a real morale booster for staff and, in turn, allows the nurses to chat with patients and their families about Headley Court and what it can offer them.

Conclusion

University Hospitals Birmingham Foundation Trust has been a Trauma Centre for many years and is ideally suited to be the headquarters for the Royal Centre for Defence Medicine. Caring for injured military personnel brings unique challenges, which may never otherwise be experienced. The greatest challenge is the psychological and social impact of injury on the soldiers and their families, and knowing the difficulties that lie ahead for them.

Ultimately, what these challenges bring is a sense of humility and pride that we are caring for our injured soldiers. NT

References
