Prompt response key to appropriate recovery

Manual Handling Adviser **Ken Cookson** examines the multidisciplinary approach taken by the staff in an acute NHS trust to improve post-fall recovery of patients with suspected injuries…

IN JANUARY 2011, a rapid response report was issued by the National Patient Safety Agency (NPSA). The report NPSA/2011/RRR0001 relates to essential care following an in-patient fall. Approximately 282,000 patient falls are reported to the NPSA each year – 208,000 of these are from acute hospital trusts and a significant number of these will result in moderate to severe injury and even death (NPSA 2011a).

Analysis of patient safety incidents reported to the National Reporting and Learning System Studies have revealed some failures in aftercare and post-fall recovery. These include delayed diagnosis of fractures, inadequate neurological observations, use of inappropriate equipment to recover from floor level and delayed access to surgery.

Following a fall, it is essential to have a prompt response including an assessment of the condition and an appropriate recovery from floor level. Failure to carry these out can exacerbate any existing trauma and delay recovery. The aim of the report NPSA/2011/RRR0001 was to instruct NHS trusts to develop and implement protocols that would enhance the post-fall recovery of patients, ensuring that safe manual handling, prompt assessment and subsequent treatment be initiated. This article looks at the multidisciplinary approach taken by the staff in an acute NHS trust.

Main issues of concern

The actions required in the rapid response report (RRR) would encompass a number of disciplines. One of the prime actions required is to ensure that correct manual handling techniques are used to recover the patient from floor level. An analysis of patient safety incidents has revealed that some patients were lifted using traditional hoist and sling methods, despite this 90-degree seated position being contraindicated in cases of suspected spinal injury, fractured neck of femur or lower limb fracture.

The report also relates that some delays had occurred in relation to basic observations and assessments; for instance, neurological examinations were carried out initially, but not continued at recommended intervals. In most cases, the injuries were not complex or difficult to detect. Serious injuries from in-patient falls are also quite rare and it is suggested (NPSA 2011b) that this could be a reason why staff failed to maintain high awareness at all times.

The overall message from the report indicates that protocols should be in place to ensure that fallen patients are correctly assessed and monitored.

The frequency and duration of the observations, especially for suspected head injury, should follow the recommended NICE NG56 guidelines (NICE 2007a). Those patients with suspected spinal injuries or lower limb fractures should be recovered using appropriate equipment that would keep the patient in a supine position and immobilise the head and neck, or lower limbs, depending on the type of injury.

Multidisciplinary approach

Safer patient handling is a key aspect of the alert but, in addition, there are other areas of concern. These relate to the assessment, observation and monitoring of injured patients and subsequent investigation and treatment as required.

A multidisciplinary approach is therefore needed so the relevant protocols and algorithms can be developed. A multidisciplinary approach to problem solving as defined by Wikipedia (2011) "involves drawing appropriately from multiple disciplines to redefine problems outside of normal boundaries and reach solutions based on a new understanding of complex situations".

In the acute NHS trust that took the multidisciplinary approach to improve post-fall recoveries, a number of relevant systems were already in place at the hospital with a recent addition being the Medical Emergency Team (MET).

The MET was set up to improve the recognition of, and response to, acute and deteriorating illness as outlined in the NICE guidelines NG50 (NICE 2007b). This pioneering response by the trust is not limited to resuscitation.

It also provides critical care standards to acutely ill or deteriorating patients anywhere in the trust and is described as "critical care without walls" (Carr 2011). The multidisciplinary team was subsequently formed and included:

- assistant director of patient safety
- manual handling adviser
- falls specialist nurse
- medical emergency team outreach nurse
- nurse clinician
- clinical risk manager
- consultant physician (advisory capacity)
- consultant orthopaedic surgeon (advisory capacity)
- resuscitation manager (adviser).

Specific problems identified

The agenda for the initial meeting was to

consider the content of the RRR and any action points that may be required for the speciality leads that were in attendance. The group felt the existing systems in place to monitor suspected head injuries would not need to be changed but would be incorporated into a new algorithm.

There was no trust history to indicate any in-patient had fallen and sustained a spinal injury, but there were 15 cases relating to fractured neck of femur as a result of an in-patient fall. There were some instances when bariatric patients had fallen and, although there were no recorded injuries, there was clearly a potential for injuries to occur, including those to the spine. This initial discussion highlighted the specific problems that needed to be addressed in developing and implementing the post-fall recovery plan and protocols.

- Lower limb fractures more likely to occur
- Potential for spinal injuries could not be ruled out
- Likelihood for bariatric patients to fall is high
- A system to recover from floor level in a supine position was essential
- Any system would need to be suitable for bariatric patients
- The systems would need to be accessible 24/7
- Need to determine which staff groups would respond to falls incidents
- Staff training required on any new equipment that was purchased
- Unlike spinal injuries, patients with suspected lower limb fractures would not normally be clinically unstable and therefore a different approach was required in terms of the response team.

The team agreed that the existing pathways for monitoring and assessing in-patients with suspected injuries, including head injuries, would not need to be changed, ie use of Glasgow Coma Scale at prescribed intervals.

It was acknowledged that the main areas of concern related to the actual means to recover the person from floor level if there was suspected spinal injury or lower limb fractures. The initial responders would need to be identified and a decision made as to whether the same group would attend for both spinal and lower limb injuries.

Within the trust there are high demands on the MET to attend patients with severe and deteriorating clinical conditions; this includes 1,600 calls since the inception in November 2009. In consideration, therefore, it was questioned whether their attendance for suspected lower limb fractures would be necessary. The advice from the consultant orthopaedic surgeon indicated that patients with fractured neck of femur or lower limb fractures resulting from a fall would be less likely to be clinically unstable compared to those with spinal injuries and would therefore not require an emergency response from the MET.

The result of this clarification meant that two response groups would need to be formed and included in the algorithm, the choice depending on the type of injury, ie spinal or lower limb. The RRR indicates that systems must be in place to recover patients from floor level. These systems must be appropriate for those patients with suspected injuries and would preclude the use of a hoist and sling unless the facility to hoist in a supine and rigid position could be assured.

Manual handling options

Patients with suspected spinal, or lower limb, fractures would need to be raised from floor level to the bed or trolley. Immobilisation of the head and neck would be a requirement for suspected spinal injuries and lower limb fractures would also need to be immobilised. A number of options were available with varying levels of risk and cost, with the assigned requirement of reducing the risk to the lowest level reasonably practicable. Any system developed would need to be suitable for the recovery of bariatric patients. The various options included:

1. rigid stretcher or spinal board/scoop then a manual lift from floor level to a trolley
2. rigid stretcher or spinal board/scoop lifted using a hoist
3. spinal board/scoop used in conjunction with air-assisted raising and lateral transfer devices, ie HoverJack® and/or HoverMatt®.

Option 1

This method would provide the necessary immobilisation and reduce the potential for exacerbating the existing injury. The potential for injury to the carer, even with multiple staff completing the manual lift from the floor, could not be ruled out, especially if the patient is bariatric. For this to be written into a planned protocol would be overlooking the statutory requirement to avoid hazardous manual handling wherever reasonably practicable (HSE 1992).

Option 2

As in option 1, the potential for further injury to the patient would be reduced by using a rigid board and potential injury to the carer would be reduced by using a hoist to raise the stretcher from floor level. There are some inherent problems that may occur when using a mobile hoist and stretcher attachment and these vary according to the model and manufacturer.

It can be difficult to position and connect the stretcher to the hoist due to the positioning of the hoist feet. The stretcher, being a wide load, would create a long lever and potential for a hoist to become more unstable. Some manufacturers recommend that the maximum safe working load be decreased when using horizontal lifting attachments. All of these presenting problems could be made worse if the patient was bariatric.

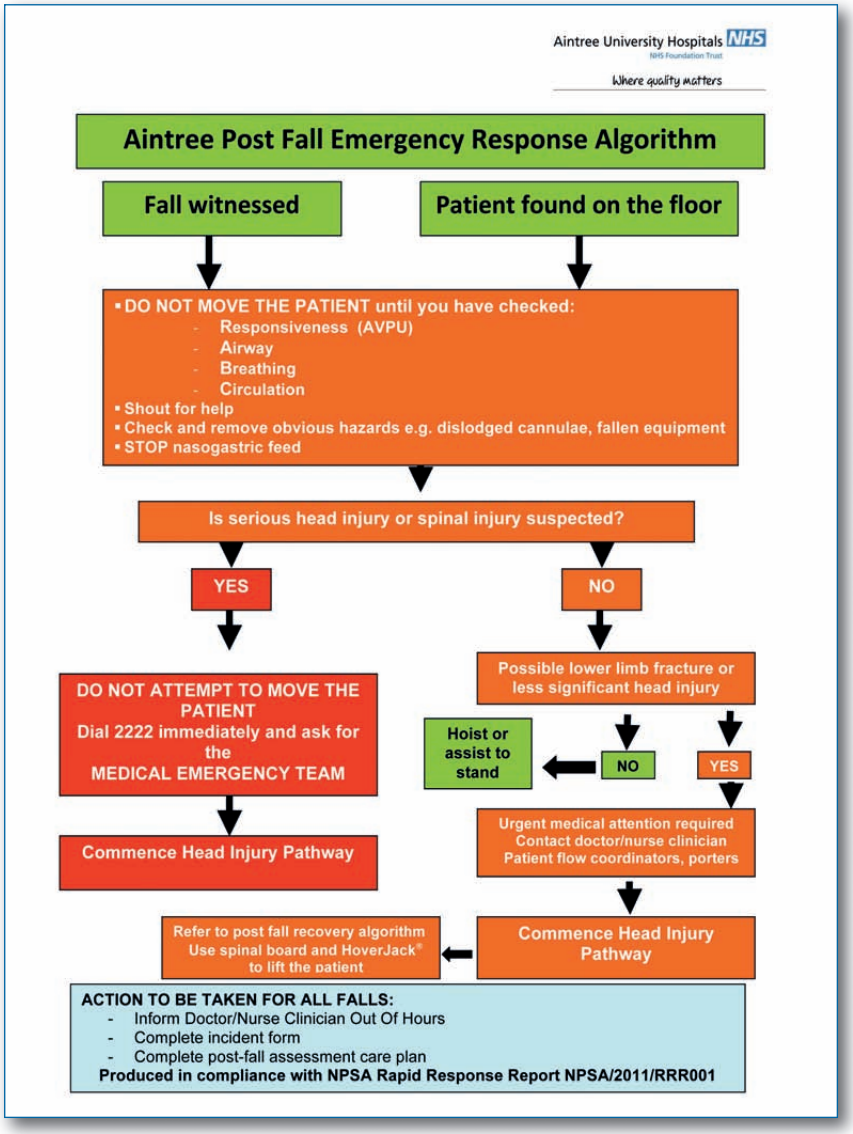
Option 3

This would be a new approach using air-assisted devices in conjunction with rigid boards. The HoverJack device when fully inflated is stable and sufficiently firm for CPR to be carried out. The width and massive load capacity at 1,900lbs (863kg) make it suitable for any patient regardless of their weight.

The potential to use a spinal board with the HoverJack and/or HoverMatt would need to be explored. The selected equipment must be free from sharp protrusions on the underside that may pierce the air-assisted device. The ability to maintain spinal immobilisation and to transfer safely and effectively from floor to trolley level would be a priority.

The use of spinal boards is generally accepted to be a pre-hospital extrication system but is not without complications. Cooke (1998) outlines a number of associated factors:

- uncomfortable
- pressure ulcer risk
- difficult to manoeuvre



Algorithm 1 (courtesy of Aintree University Hospitals)

- restricts examination
- scares the patient
- can be used inappropriately.

It is important to note that, whichever manual handling method is chosen, it is the clinical condition that will remain the priority. The patient with suspected spinal injury will need to be adequately immobilised using a combination of:

- spinal board
- neck brace
- head immobiliser.

Only when secured as outlined above should the patient be placed on either a HoverMatt or HoverJack. There should be sufficient numbers of staff available at all times to ensure the correct positioning of the spinal board on either surface and this should be maintained until the patient is elevated and finally transferred to the bed or trolley.

The inclusion of bariatric patients that may have fallen and sustained an injury is required when planning for foreseeable events. With some bariatric patients it may be difficult to immobilise and stabilise if the cervical collar does not fit and this may require modified techniques such as sandbags and tapes (Bushard 2002).

A typical spinal board is normally 16 inches wide with a capacity of 160kg – both these factors could be restrictive should the patient be morbidly obese. A detailed internet search for a wider spinal board with increased weight capacity highlighted an interesting point. Although with limited availability it was possible to find a high weight capacity spinal board (1,000lbs). However, this board was restricted to 16 inches wide. It was not possible to readily locate an expanded capacity spinal board combined with the additional width required for bariatric patients.

This raises the question regarding the management of bariatric patients who may be unfortunate to sustain trauma – what are other organisations using and how are bariatric trauma patients managed by the emergency services? Eventually, a 20-inch wide board was located with a load capacity of 1,000lbs, but during pre-use checks with the head immobiliser kit from the same manufacturer, they were found to be incompatible. The straps on the universal head immobiliser were only suitable for a 16-inch board. The manufacturer took on board the incompatibility issues that were highlighted and redesigned the head immobiliser based on drawings that were provided. This initial incompatibility problem reinforces my concern that systems may not be in place nationally for bariatric patients who sustain significant trauma.

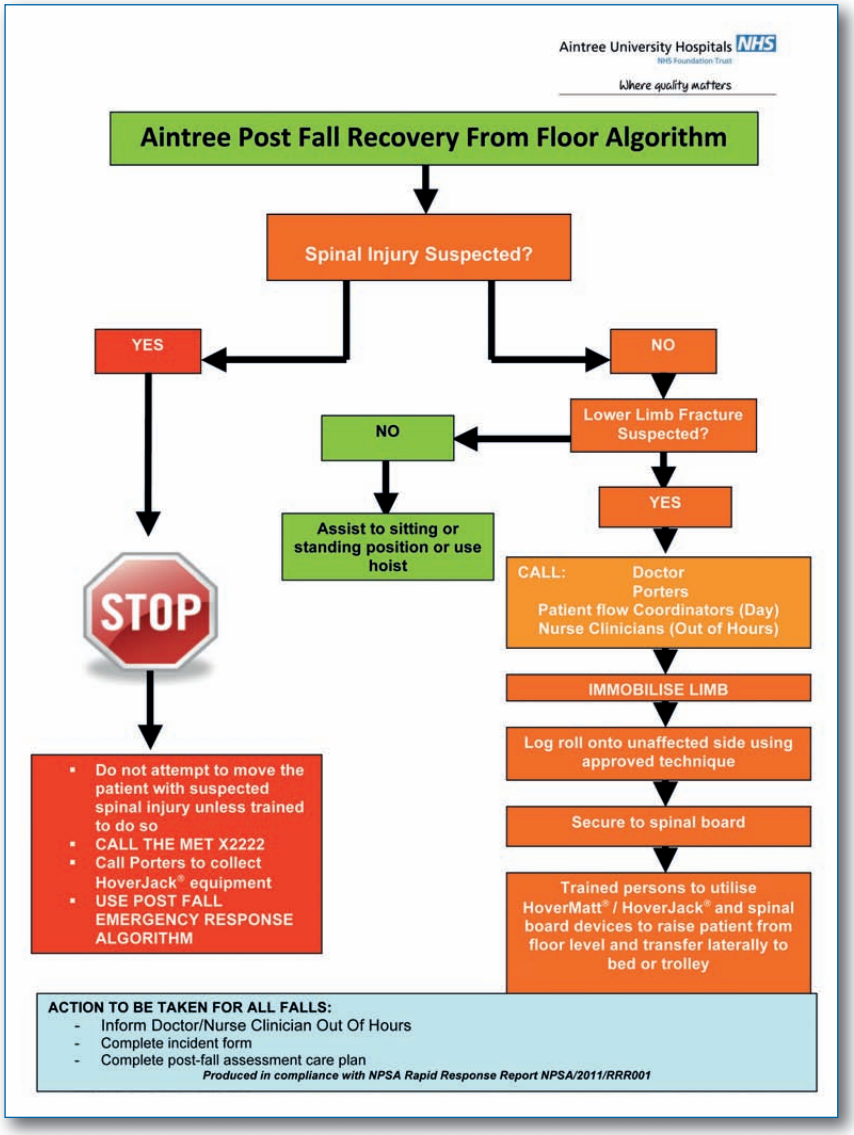
Progress

It was agreed that the purchase of air-assisted transfer systems would provide the most flexible and cost-effective approach as the initial cost of the products could be balanced against the potential for use in a number of situations, including the recovery of uninjured patients that could not be recovered from floor level by normal movement methods.

Algorithms were developed and submitted to the trust clinical standards group for approval. These would provide a guideline for trust staff who may be involved in the post-fall recovery. Two algorithms were developed: one being the initial emergency response algorithm (Algorithm 1), and the second being the post-fall recovery algorithm (Algorithm 2).

Practical sessions

The manual handling aids included a HoverJack, HoverMatt, Pat slide and extension straps. The aim was to test possible post-recovery solutions using a combination



Algorithm 2 (courtesy of Aintree University Hospitals)

of air-assisted devices and a spinal board. The standard size spinal board was used for these sessions. The bariatric spinal board is considerably longer at 200cm; if transferring to a hospital bed then the footboard must be removed.

It was possible to place the spinal board on to the HoverMatt and transfer laterally on to the deflated HoverJack. This procedure did require an extra manoeuvre to tilt the patient and spinal board in order to insert the HoverMatt. The preference was to use a Pat slide and webbing straps to manoeuvre the spinal board on to the HoverJack although both methods are feasible (Figs 1-3).

An alternative solution was attempted to transfer the spinal board on to the HoverJack, which required the spinal board to be lifted using webbing straps. The lower cell of the HoverJack was inflated and it was then pushed underneath the spinal board from the foot end. The inflation of the lower cell made it easier to push, but did increase the lift height (Fig 4, overleaf). Lifting in this manner requires a minimum of seven persons, three on either side and one person to manoeuvre the trolley under the patient. This was modified for only six staff available and a model weighing 63kg. Both carers and patient preferred the previous transfer using the Pat slide.

The same procedures using the spinal board are feasible for a patient with a lower limb fracture. During practice it was felt it was

Figure 1: Setting up to transfer spinal board on to the HoverJack

Figure 2: Patient positioned on the HoverJack

Figure 3: HoverJack being inflated

Figure 4: Sliding the HoverJack in from the foot end

Figure 5: Inserting the HoverJack using the log roll technique

Figure 6: Positioned centrally on HoverJack

easier to simply log roll on to the unaffected side and insert either the HoverJack or HoverMatt (Fig 5-7).

Conclusion

The air-assisted systems provide a viable method to recover patients from floor level with either suspected spinal or lower limb fractures. None of the methods tested have been REBA scored at this time (Hignett & McAtamney 2000), but the assessment would be valuable as the techniques are refined.

It is important to stress that the use of a spinal board is normally a pre-hospital procedure and staff may not have the necessary skills to correctly insert it under the patient. The same applies to the log roll technique required for suspected spinal injuries. This method is different to the techniques used for the insertion of slide sheets and recovery position. The technique must only be carried out by competent persons. The methods illustrated in this article appear to work well but are not intended to be prescriptive. Since implementing the protocol, the author has successfully used the equipment in a number of scenarios, including the post-fall recovery of a bariatric patient weighing 172kg, a fallen patient with suspected C spine trauma and a patient with suspected fractured neck of femur.

The HoverMatt, HoverJack and spinal board provide a viable and alternative solution for post-fall recovery that can be mixed and matched together as required. Whatever method is chosen it is important to continually monitor and assess the patient until safety and stability is achieved.

Figure 7: Raised from floor level – lateral transfer completed

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CAUTION – REMEMBER

>> Patients with a suspected spinal injury must be secured on a spinal board before placing on the HoverMatt or HoverJack
>> Only competent staff should carry out log roll techniques if spinal injuries are suspected
>> Neck brace, spinal board and head immobilisers are generally used together.

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