

**Positioning patients in Vegetative and Minimally Conscious states in wheelchair and bed -
Experiences of nurses and Health Care Assistants (HCA's)**

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Abstract

Objective: This study explored

- (i) the strategies nurses and Health Care Assistant's followed when positioning patients
- (ii) the difficulties they faced and
- (iii) their views on the posture management training received

Design: Qualitative study using mini focus group discussions

Setting: Five specialist units providing rehabilitation and long term care for people in low awareness states.

Subjects: Nurses and HCA's working with people in low awareness states.

Interventions: Separate focus group discussions with nurses and HCA's

Results: 15 nurses and 19 HCA's participated in 10 mini focus groups. The focus group transcripts were analysed using the long table approach. Themes evolving from the analysis suggested nurses and HCA's to have good awareness of the advantages of posture management. Nurses and HCA's received informal training and support from the therapists and felt comfortable in using the available positioning aids.

Conclusions: This study highlights the need for structured posture management training to nurses and HCA's.

AIMS AND OBJECTIVES

BACKGROUND

Advances in medical sciences and technology have allowed more severely impaired people to survive, leading to an increase in the number of people in low awareness states (Royal College of Physicians, 2003). A brief description of the Vegetative and Minimally conscious states are given to highlight the scope of this study.

Minimally Conscious State:

Minimally Conscious State is a term used to describe people with severe brain injury who show signs which are not reflex in nature and do not occur consistently enough to be used to demonstrate awareness or to communicate (Giacino et al, 2002).

Vegetative State:

Jennett and Plum (1972) first described Vegetative State, which is characterised by the patient demonstrating a sleep-awake pattern, responding to stimuli at a reflexive level and without meaningful response to the environment.

The most common causes of the low awareness states in adults and children are traumatic brain injury and hypoxic-ischaemic encephalopathy (Multi Society Task force, 1994). Other

causes for low awareness states may include degenerative and metabolic nervous system disorders and severe congenital malformation of the nervous system. Beaumont and Kenealy (2005) described the difficulty in establishing the epidemiological data for VS. They suggested an incidence rate of 5 and 25 per million population in the United Kingdom for VS continuing for more than 6 months.

The main role of rehabilitation for this client group is to maximise potential for recovery, maintain their present physical status and to prevent deterioration (check reference Andrews 2005). The National Service Framework for long-term conditions Quality requirement 4 states that

“there is improved access to rehabilitation and rehabilitation is provided with specialist equipment (including wheelchairs and seating support systems) where required”.

An important part of rehabilitation and long term care in this patient group is 24-hour posture management (positioning in bed and wheelchairs). There is very little published literature regarding/on the effective management strategies used in patients in low awareness states. The majority of published literatures discuss issues related to diagnosis, neuropathology or the assessment of low awareness states.

Pope (2002) described the situation appropriately as follows

“Studies of posture in the able-bodied population intensified in the last century,The disabled person, unfortunately, has not benefited in any comparable way”

Immobility and sustained posturing may lead to soft tissue shortening which is a major secondary complication with this group of patients (Singer et al 2001). Contractures arising through inappropriate positioning can hinder effective seating and provision of hygiene needs (Edwards 2002). This could lead to pain, discomfort and can make nursing care difficult. **The researcher has experienced this personally when admitting patients in the current workplace.**

A further serious secondary complication is pressure ulcer formation. These patients should not be nursed in bed all the time. On the other hand sitting for long period with minimal or no movement may increase the risk of pressure damage. It is estimated that the treatment of pressure ulcers could cost £1 - £2 billion per annum (Bennet et al 2004). Pope (2007) highlights that complications arise from lack of posture control in both sitting and lying. Collins (1999) proposed correct postural alignment in sitting to support effective management of areas at risk of pressure. Regular changes in posture has been shown to alter muscle length, redistribute pressure, facilitate the respiratory system, help in improving alertness and orientation as well as providing comfort (Morgan et al 2003; Hough, 2001; Wenger, 1982).

Of all members of the multi-disciplinary team it is the nurses and HCA's who spend the most time with patients in low awareness state (towards the development of brain injury specialists). Nurses and HCA's play a multifaceted and pivotal role in the management of this client group and should be in a position to identify bad postures to correct them.

This study explored

1. Strategies nurses and Health Care Assistants (HCA's) followed when positioning patients in low awareness states in wheelchairs and in bed
2. Difficulties nurses and HCA's encountered when positioning patients
3. Nurses' and HCA's views on the posture management training

PARTICIPANTS AND STUDY DESIGN:

Ten specialist units in England, providing rehabilitation and long term care for people in low awareness states, were invited to participate in the study. Five units that agreed to participate in the study were provided with research advertisement posters which were displayed and interested participants were asked to contact their managers for further information. The nursing managers provided participants with information sheets which described each phase of the study and had the researchers' contact details. Participants were encouraged to contact the researcher if they had any queries.

Ten mini focus groups were conducted with 19 HCA's and 15 nurses separately. Each discussion lasted around 90 minutes and was conducted at the participants' workplace. Where possible a quiet room without potential interruptions was chosen for conducting the focus group discussions. All participants completed a demographic questionnaire and signed the consent form before the discussions. The demographic questionnaire was used to collect details of the posture management training received by the participants and participants' qualification and experience with people in low awareness states.

The focus group discussions were audio taped and a note taker, who also acted as the assistant moderator, documented notes during the discussion. The assistant moderator was positioned close to the door to minimise disturbances during the discussion.

A question route with Introductory, transitional, key and closing questions was prepared as suggested by Kruger and Casey (2000). Nurses, physiotherapists and HCA's from the researcher's work place and two senior Physiotherapists from a renowned organisation reviewed the question route and suggested changes. The wording of the questions was similar for all the focus group discussions.

Ethical approval was obtained from the School of Health and Social Care Research Ethics Committee at Oxford Brookes University.

RESULTS:

The audio tapes were transcribed and analysed using a 'long table' approach (Kruger and Casey, 2000). Analysis was based upon frequency, specificity, emotion and extensiveness. When similar responses were grouped together for each question, a descriptive summary was written by the moderator which was then reviewed by the assistant moderator and

changes made. The categories and themes that emerged from each discussion were reviewed by participants from two organisations and accepted as accurate presentations. No further comments were received from these participants.

What is posture management and how it helped people in low awareness states?

Nurses and HCA's had good awareness of what posture management is and acknowledged it as a 24-hour approach carried out by the multidisciplinary team.

Nurses and HCA's said posture management helped in preventing pressure ulcers, reduce pain, promote comfort, improve breathing (managing secretions), prevent contractures and improved quality of life. They quoted examples during the focus group discussions from their clinical experience.

Strategies used when positioning patients:

Two or more nurses and HCA's worked together to position patients in wheelchair and in bed. The staff perceived communicating with patients, reassuring and keeping them informed throughout the procedure, made them calmer and cooperative. They perceived this cooperation as a form of obtaining consent.

The common technique used for positioning patients in wheelchair was for one staff member to stand in front of the patient, guiding the patient into the wheelchair by gently pushing at the hips, while the other staff member was behind the patient's wheelchair operating the hoist controls. If a patient presented with complex deformities of the limbs or with generalised low tone or in the presence of a tracheostomy, a third member of staff was called in to help.

Awareness about the principles of posture management was evident during the discussions. One HCA stated

"If you position the hips then the rest of the body will.....generally speaking the hips are important"

Through patients facial expression staff were able to identify if the patient was in pain or discomfort.

A nurse said

"The patients have now been here for years and we can practically read their minds. Even if they don't speak you get to know the body language"

As the patients were admitted for long term care, the staff developed a regular routine which was flexible and gave them enough time to position the patients and get them ready and organised for various appointments i.e. physiotherapy, occupational therapy or social activities sessions.

Equipments used when positioning patients:

Hoists and slings were always used to position patients in the wheelchair. Staff had mixed opinion about the use of mobile hoists due to the difficulties in manoeuvring the hoists with the patients in the sling, hoists getting in way when positioning patients in wheelchairs/ bed and increased manual handling. Of the five organisations that took part in this study only one organisation had ceiling hoists in all rooms. In all other units more than 90% of the patients were transferred using the mobile hoists.

Nurses and HCA's were confident in using different types of wheelchairs with various accessories i.e. Head rests, foot rests, thoracic supports, tray etc. The chairs were set up by the therapists and were adjusted upon request if and when required.

Nurses and HCA's used various positioning aids including E and T rolls, wedges and bean bags to position patients in bed. Participants from two of the five organisations were using specialist sleep systems. However they had mixed opinion about their use. This was described by a nurse as

“symmetrikit with all its gadgets looks stuffed and incontinence in symmetrikit is difficult to manage....but the advantage is it provides firmer support than pillows”

Difficulties experienced by nurses and HCA's due to patient's condition/ presentation:

Nurses and HCA's experienced difficulty positioning patients with complex deformity and with increased muscle tone. They used the guidelines provided by the therapists to position difficult patients and were very appreciative of the help available from the therapists. Nurses and HCA's were aware of other interventions that complemented positioning e.g. Antispastic medication, Botulinum Toxin injections, Splinting, gentle stretches, neck collars etc

In one of the nurses' Focus groups the discussion went as follows

Participant 1: *“...like my lady there....she is tight and it is hard to get her in the right position because we can't move her arms.....you need to spend a lot of time to make her comfortable.”*

Participant 2: *“Good splints help”*

Participant 3: *“Elbow contractures.....you will NEVER position that correctly (shows a flexed elbow). She (patient) won't let you”*

Nurses and HCA's felt that it was difficult to position people with increased muscle tone and referred to it as 'hard work', 'awkward' and 'takes ages'.

Other difficulties that nurses encountered when positioning patients included

- patients with spasms, as they moved out of position after being positioned
- pain, as staff had to address the source of the discomfort or pain

- patients with pressure ulcers, as staff had to be innovative in positioning patients without causing further damage to the pressure area
- patients with involuntary movements/ seizures, as it sometimes lead patients to move out of position
- patients using oxygen or on Percutaneous Endoscopic Gastrostomy (PEG) feeding, as tubes got in the way when positioning and
- heavy patients, due to the increased manual handling

Nurses and HCA's were aware of the importance of positioning patients with tracheostomies correctly and reported it was not more difficult than positioning a patient without a tracheostomy. However they reported difficulty when patients' moved out of position due to strong coughing. Participants were apprehensive about the obstruction of the tracheostomy tube that could be caused by flexion of the neck and associated difficulty with breathing and clearing of secretions. Nurses and HCA's emphasised the importance of good head positioning and supporting the head during transfers to prevent coughing, aspiration and to maintain oxygen saturation.

When patients were transferred to the rehabilitation units with an open skull, (as patients were awaiting cranioplasty or were not suitable for cranioplasty) staff were apprehensive about the patient's head banging into parts of wheelchair or bed when not supervised.

Patients in low awareness states who presented with agitation or uncontrolled involuntary movements were difficult to manage as they moved out of position in their wheelchair and in bed. This also increased the risk of pressure ulcer formation from friction and worsening of deformities (in spine and limbs).

Positioning in bed Vs Positioning in wheelchair:

Participants had mixed opinion about the level of difficulty involved in positioning people in wheelchairs versus positioning them in bed. Some participants felt positioning in a wheelchair was difficult as it was difficult to manoeuvre the patient with a mobile hoist and positioning in chair involved correctly placing lots of bits and pieces like lateral supports, head rest, foot rest etc. However some had the view that positioning in bed was difficult as manual handling was harder and staff had to use heavy rolls and wedges while positioning patients in the bed.

Training and therapist support:

Eight (38%) HCA's and five (33%) of nurses said they had not received any training in posture management. Of the eleven (62%) HCA's who said they had received training six had received training for less than two hours, three had variable, ongoing, informal training, one had training for a day and one did not answer the question. Informal trainings were usually demonstration of positioning a patient or operation and adjustment of different parts of wheelchair. Occasionally staff attended posture management clinics with patients and felt that was useful.

Impact of training:

Participants perceived that training, formal and informal, had improved knowledge of the staff, improved confidence, made positioning consistent and most importantly improved patient comfort. In one of the focus groups the discussion was

Moderator: Has the training changed clinical practice?

Participant 12: yeah most of the patients are sitting in the correct position

Part 13: Before people (staff) never used to care...when they (patients) are sitting in their chair. But now they (staff) know ...that it has to be 90-90-90 (degrees at hip, knee and ankle).

Participant 12: which is really working very good

HCA's wanted future trainings to include different techniques to position patients, use of aids and wheelchair and anatomy of the human body

Participants felt that such training on posture management should be mandatory.

Theoretical information on posture management:

Of the 10 nurses (67%) who said they received training five (33%) had training for less than two hours, one participant had training for half day, one for a day and two participants had training for more than two days. One participant did not provide an answer. With the participants who had training for more than two days, the trainings were predominantly manual handling and included other topics such as splinting.

Was posture management covered in induction?

Most participants (18 out of 19 HCAs and 11 out of 15 nurses) had less than two hours of training in posture management. Nurses and HCA's appreciated therapists for providing demonstrations for new and complex patients or when complex equipment was provided to patients.

Guidelines and written information:

Use of photographic guidelines with step-by-step instructions was widely practised in all the participating units. The guidelines were prepared by the therapists and care plans were written up jointly by nurses and therapists. Participants reported that these guidelines were very useful and helped in maintaining consistency in 24-hr posture management. One participant stated

"I am thinking about the evening when the girls (HCA's & nurses) are not too sure. But we have wonderful photographs on how somebody needs to be positioned. After positioning we can compare if he has been positioned properly. It can take a while to position."

Participants were appreciative of the help that was readily available from the therapists. A nurse explained the cohesive team working in practice as

“Yeah we are very lucky and they (therapists) are very supportive. Training has increased and therapist is very pro training and very much involved in teaching. It has actually got much better than a few years ago.....we are more of a team now”

Discussion

Limitations:

In total 19 HCA's and 15 nurses participated in 10 mini focus groups. The sample size in this study is a limitation. The specialist units that participated in this research study were identified by the researcher and hence constitute a convenience sample. The focus group transcripts were reviewed by participants from only two out of the five organisations due to lack of resources. In some focus group discussions, due to restricted time, there was a rush to finish the group discussions. This may have prevented the participants from clarifying or raising other issues that had come to their thought later. In addition, since the participants came forward voluntarily to participate in this study it may be the case that they were the most vocal and confident minority.

Nurses and HCA's had good awareness of posture management and its advantages. Nurses and HCA's were confident in handling a variety of wheelchairs, accessories and manual handling aids. However participants who were predominantly using mobile hoists to transfer and position patients raised concerns due to the difficulties experienced i.e. Hoist difficult to manoeuvre and patients' limbs and hoist parts getting in the way. The author has experienced difficulties in using the mobile hoists for positioning patients when ceiling hoists were undergoing maintenance. Sleep systems were in use only in two of the five participating organisations. The pattern of usage and availability of sleep systems and other posture management equipment for this patient group needs further investigation.

The advantages of working with patients in long term care were evident from nurses and HCA's comments. Nurses and HCA's got to 'know' the patients well and were predicting responses and identifying symptoms early. Participants had good knowledge of common complications occurring in these patient groups. There was also a strong sense of team and multidisciplinary working as nurses and HCA's were very appreciative of the support and advice available from their therapy colleagues.

An interesting finding in this study was the similarity in which nurses and HCA's answered the questions. One reason for this could be that they both received the same form, frequency and duration of training in posture management and applied the same posture management protocol provided by the therapists. This issue needs further investigation as nurses will be advising HCA's as their supervisors and are the first point of contact when troubleshooting.

The findings of this study are in line with Jackson and Manchester (2001) who stated that the staff that had the greatest contact time also had the least training. That was observed in this study with most posture management trainings being informal and for less than two hours. Structured training at induction and at least yearly updates or problem solving sessions would provide nurses and HCA's with the theoretical knowledge on posture management and may help in creating 'posture management champions' in specialist units caring for these patients. Nurses and HCA's need the knowledge and skill to identify the bad postures. Delay in identifying bad postures may lead to development of complications such as pressure ulcers resulting in the patient being admitted in an acute hospital bed. This subject of positioning and posture management is rarely covered in nurse training (Hawkey and Marsh, 2003). The need for training nurses in the topic of seating has been suggested in the past (Collins 1999). Studies on nurses have shown improvement in clinical practice when clear, concise written instructions and training were provided (Wedge and Gosney (2005), Hawkey and Marsh (2003)).

Due to strict health and safety regulations, employers comply with manual handling trainings. Organisations can conduct posture management training alongside manual handling trainings as operating hoists, slings and sliding sheets form major part in positioning a patient in low awareness state.

Posture management is a new and developing speciality that deserves greater recognition. 24-hour posture management is referred to in a 2009 Royal college of Physicians 'Spasticity in adults: management using Botulinum toxin guideline'. Nurses and HCA's in the area of neurodisability need to be creative, innovative and are expected to play the major role in meeting people's needs. For example positioning equipment need to be used in a variety of ways to suit each patient due to the complexity of presentation and deformities. Physiotherapists and Occupational therapists with specialist knowledge in posture management need to support and train nurses and HCA's to improve the health and well being of this complex patient group.

Key messages:

Structured in-depth posture management training is vital for nurses and HCA's working with people in low awareness states due to

- Rarity of these conditions, heterogeneity and complexity of this patient group
- A wide variety of posture management aids and accessories prescribed to these patients

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Health Care Assistants							
Qualification	Years of experience as HCA	Years of experience with people in LAS	Posture management training received	Posture management training received as part of NVQ/ Degree/ Diploma	Training provided by PT/OT/ RN	Format of training Theory (T)/ Practical (P)/ Guidelines (G)	Length of training
NVQ	1-2	1-2	Yes	No data	No data	No data	Variable
NVQ	4+	0-1	Yes	NVQ	PT/ RN	T/P/G	Variable
NVQ	3-4	3-4	No	No data			
Diploma/ Degree	0-1	0-1	No	No data			
NVQ 3	3-4	3-4	Yes	No data	No data	No data	Demo/ ongoing
NVQ/ Diploma	4+	4+	No	No data			
NVQ	4+	4+	No	No data			
Degree	0-1	0-1	No	No data			
NVQ/ Degree	4+	0-1	Yes	NVQ	PT/	T/P	1-2 Hrs
NVQ	1-2	1-2	Yes	No data	No data	No data	No data
NVQ	4+	3-4	No	No data			
NVQ	4+	4+	Yes	No data	PT/OT	T/P	1-2 hrs
----	0-1	0-1	Yes	No data	PT	T/P	1-2 HRS
NVQ	4+	4+	Yes	No data	PT	T/P	1-2 HRS
NVQ	4+	4+	Yes	No data	PT	T/P	1-2 hrs
NVQ 2	3-4	1-2	Yes	NVQ	PT	P	0-1 hr
-----	1-2	1-2	Yes	No data	RN	Video	1 day
NVQ	1-2	1-2	No				
NVQ	1-2	1-2	No				

Table 1: Demographic characteristics and information on posture management training received by HCA's

Registered Nurses							
Qualification	Years of experience as nurse	Years of experience with LAS	Posture management training received	Posture management training part of Degree/ Diploma	Training provided by PT/OT	Format of training theory/ practical/ guidelines	How long was the training for
D	4+	1-2	No				
BSc	4+	3-4	Yes	No	PT	T/P/	1-2 HRS
D	1-2	1-2	No				
D	4+	4+	Yes	No	PT	T/P/ Gui	Variable
D	1-2	3-4	Yes	No	Four seasons	No data	1-2 hrs
D	4+	4+	Yes	No	OT/PT	T/P	2+ DAYS
D	4+	1-2	Yes	No	RN/PT	T/P	AV Aids 1-2hrs
D	1-2	3-4	Yes	No	No data	No data	1-2 hrs
D	4+	4+	Yes	No	PT/OT	P	1-2 hrs
D	4+	4+	Yes	Yes	PT	T/P	½ DAY
D, NVQ2,3	4+	4+	No				
BSc	4+	4+	Yes	Yes	Nurse	T/P	1day
BSc	4+	3-4	No				
D	4+	4+	Yes	No	PT	T/P	2+ Days
BSc	4+	4+	No				

Table 2: Demographic characteristics and information on posture management training received by Nurses