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Successful inter-disciplinary management of complex physical presentations after severe brain injury

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Background

Patients with severe brain injury present with complex needs, including severe spasticity, complex positioning requirements and significant cognitive and communicative impairments.

It can be difficult to quantify outcomes for these patients and there is a lack of evidence of the impact and importance of specialist postural management in this client group.

Using a collection of case studies this presentation aims to illustrate the physical management of complex patients to demonstrate positive outcomes and highlight best practice.

Methods

Postural Management seeks to optimise the physical status of the individual over 24 hours in order to minimise the complications associated with their impairment and to maximise their abilities.

Four patients with severe brain injury were admitted to a specialist in-patient neuro-rehabilitation unit.

The patients received intense postural management across 24 hours including positioning programmes, splinting programmes, customised seating, and specialised spasticity management. The postural management programmes were delivered by the whole interdisciplinary team in order to optimise outcomes.

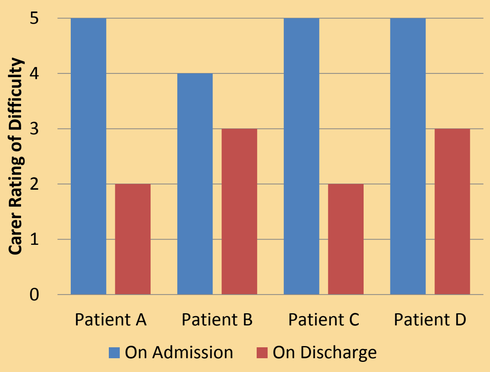
Results

The management programme led to reduced complications, discomfort, load of care and an optimised opportunity to demonstrate signs of awareness, which in turn led to more accurate assessment of cognition and ability[1].

All four patients remained dependent on assistance for all aspects of their care, but the optimisation of their physical status allowed two patients to develop communication methods. The improvements in all four patients is reflected by the reduction in carer rating of difficulty in delivering care tasks such as washing, dressing and hoisting (Fig. 1).

The graph below uses a scale of 0 to 5 where the lowest score refers to “no difficulty in delivering care” and the highest score refers to “almost impossible to deliver care”.

Fig. 1: Graph showing changes in carer rating of difficulty for care tasks



Discussion

These case studies demonstrate that in-patient postural management, provided by a specialised inter-disciplinary team, was key to allowing optimal assessment and rehabilitation as well as reducing care needs and maximising comfort.

In addition to physical and medical intervention, skill, continuity of care and on-going review were vital for effective postural management.

The implications for best practice are that individuals should receive specialist inter-disciplinary assessment to ensure patient-centred, holistic management and optimal outcomes[2]. Customised wheelchairs can make a profound difference to the function and care of patients with complex physical and cognitive impairments[3]. In addition, individuals should have life-long access to on-going specialist review of 24 hour postural management [3,4].

Conclusion

Postural management including customised wheelchair provision, is a priority for complex patients and should be provided as part of specialist inter-disciplinary assessment and management.

Patient A: Postural Management to Optimise Communication

Background
Patient A: Female, in her 30s with a brainstem and thalamus infarct. Admission to RHN 10 Weeks after onset.
Presentation on admission:
- Quadriplegic with no functional movement
- Episodes of dysautonomia and severe spasms
- Emotion, pain and effort worsening spasms
- Attempting eye movements for communication but severely limited by neck position and spasms
- Requiring 3 carers to carry out hoisting and positioning in her chair
- Significant amount of time and skill required to provide care
- Carer rating of difficulty was 5/5.

Intervention
- Intense interdisciplinary management of spasticity and hypersensitivity over several months
- Customised seating and 24 hour postural management adapted regularly, as required
- Inter-disciplinary assessment of communication
- Psychological support

Results:
- Maintaining a stable posture was key to allowing Patient A to use her eyes for communication
- As she stabilised, interdisciplinary work on communication techniques commenced
- As her dysautonomia and spasms settled she was able to tolerate tracheostomy weaning

Outcomes:
- Carer rating of difficulty reduced from 5/5 to 2/5
- Number of carers required reduced from 3 to 2
- A consistent and reliable method of communication was established
- Her tracheostomy was successfully removed

Fig. 2.1: On Admission

Fig. 2.2: Results

Patient B: Postural Management to Optimise Awareness

Background
Patient B: Male, in his 20s admitted with severe traumatic brain injury. Admitted 4 months post injury.
Presented with:
- Significant upper and lower limb contractures
- Severe spasticity notably in neck, left arm and left knee causing breakdown of skin integrity in left hand
- Inconsistent localising and tracking
- Inconsistent following of commands
- No reliable form of communication

Intervention
- Interdisciplinary physical and spasticity management
- Optimal physical presentation enabled the detailed assessment of awareness

Results:
- Stable posture alongside spasticity management led to increased voluntary movement of left upper limb
- Able to use upper limb to answer yes/no questions

Outcomes:
- Reduction in carer rating of difficulty in delivering care tasks
- Emergence from prolonged disorder of consciousness
- Reliable form of communication

Fig. 3.1: On admission

Fig. 3.2: Provision of customised wheelchair

Patient C: Postural Management for Comfort and Postural Stability

Background
Patient C: Male, in his 20s with profound hypoxic brain injury. Admitted to RHN 3 months post injury.
Presented with:
- Physical, cognitive and communication impairment
- Complex spasticity
- Generalised myoclonus and myoclonic jerks
- Upper and lower limb contractures

Intervention
- Interdisciplinary physical management
- Careful timing of spasticity management including systemic medication and focal intervention (botulinum toxin) alongside assessment of awareness

Outcomes:
- Reduction in carer rating of difficulty in delivering care tasks
- Reduction in number of carers required for bed mobility and hoisting from 3 to 2

Fig. 4.1: On admission

Fig. 4.2: Provision of Customised wheelchair

Patient D: Postural Management to Minimise Complication Risk and Reduce Load of Care

Background
Patient D: Male, in his 30s with severe hypoxic brain injury. Admitted to RHN 5 months post injury.
Presented with:
- Unable to be seated
- Severe dysautonomia, spasms, dystonia.
- Significant upper and lower limb contractures
- High risk of skin breakdown at wrist and elbow creases
- Hypersensitivity on soft touch

Intervention
- Interdisciplinary physical management
- Careful timing of intense spasticity management with assessment of awareness
- Assessment and insertion of intrathecal baclofen pump

Results:
- Achieved decannulation due to more stable respiratory presentation following consistent ability to be seated
- Skin integrity maintained
- Optimal physical presentation enabled detailed assessment of awareness

Fig. 5.1: On admission

Fig. 5.2: Provision of Customised wheelchair

Outcomes:
- Reduction in spasticity severity, intensity and frequency
- Reduction in carer rating of difficulty in delivering care tasks
- Reduction in number of carers required for bed mobility and hoisting from 3 to 2
- Diagnosis reached following detailed assessment of awareness

References

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Acknowledgements

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