

NATIONAL INSTITUTE FOR HEALTH AND CLINICAL EXCELLENCE

Centre for Clinical Practice

Review consultation document

Review of Clinical Guideline (CG83) - Rehabilitation after critical illness

Background information

Guideline issue date: 2009

3 year review: 2012

National Collaborating Centre: Centre for Clinical Practice

1. Consideration of the evidence

Literature search

From a high-level randomised control trial (RCT) search, new evidence was identified relating to the following clinical areas within the guideline:

- Different rehabilitation strategies/programmes for adult patients.
- Optimal time for initiating or delivering rehabilitation strategies/programmes to adult patients.

Through this stage of the process, a sufficient number of studies (6) relevant to the above clinical areas were identified to allow an assessment for a proposed review decision.

No additional clinical area was identified from initial intelligence gathering, qualitative feedback from other NICE departments, and the views expressed

CG 83: Rehabilitation after critical illness

[19th April to 3rd May]

1 of 15

by the Guideline Development Group that required further focused literature searches.

The results of the high level RCT search are summarized in table 1 below and the references can be viewed in Appendix 1.

Table 1

| Clinical area 1: Different rehabilitation strategies/programmes for adult patients. | | |
|--|---|---|
| Clinical question | Summary of evidence | Relevance to guideline recommendations |
| <p>Q: What are the clinical effectiveness and cost-effectiveness of different rehabilitation strategies/programmes for adult patients who have developed physical and non-physical morbidity including psychological problems and cognitive deficits following a period of critical illness and associated with their treatment experience in critical care?</p> | <p>Through the high level RCT search five studies relevant to the clinical question were identified.</p> <ul style="list-style-type: none"> • One study¹ systematically reviewed the evidence and assessed the effects of protocolized weaning from mechanical ventilation on the total duration of mechanical ventilation for critically ill adults; ascertained differences between protocolized and non-protocolized weaning in terms of mortality, adverse events, quality of life, weaning duration, intensive care unit (ICU) and hospital length of stay (LOS); and explored variation in outcomes by type of ICU, type of protocol and approach to delivering the protocol. The authors concluded that there is some evidence of a reduction in the duration of mechanical ventilation, weaning | <p>No new evidence was identified which would invalidate current guideline recommendations.</p> |

CG 83: Rehabilitation after critical illness

[19th April to 3rd May]

| | | |
|--|---|--|
| <p>Relevant section of guideline 2.2 Rehabilitation strategies/programmes Recommendations 1.1.6, and 1.1.16 - 1.1.19</p> | <p>duration and ICU LOS with use of standardized protocols. However, with regard to this review, the authors commented that there was significant heterogeneity among studies and an insufficient number of studies to investigate the source of this heterogeneity.</p> <ul style="list-style-type: none"> • One study² investigated the hypothesis that nurse led follow-up programmes are effective and cost effective in improving quality of life after discharge from intensive care. The findings showed that a nurse led intensive care follow-up programme showed no evidence of being effective or cost effective versus standard care in improving patients' quality of life in the year after discharge from intensive care. The authors suggested that further work should focus on the roles of early physical rehabilitation, delirium, cognitive dysfunction, and relatives in recovery from critical illness. • One study³ investigated the effect of an individualised eight-week home-based physical rehabilitation program on | |
|--|---|--|

| | | |
|--|---|--|
| | <p>recovery. This individualised eight-week home-based physical rehabilitation program did not increase the underlying rate of recovery in this sample when compared to standard care, with both groups of critically ill survivors improving their physical function over the 26 weeks of follow-up. The authors suggested that further research should explore improving effectiveness of the intervention by increasing exercise intensity and frequency, and identifying individuals who would benefit most from this intervention.</p> <ul style="list-style-type: none">• One study ⁴ evaluated whether a prospectively collected diary of a patient's intensive care unit (ICU) stay when used during convalescence following critical illness will reduce the development of new onset Post Traumatic Stress disorder (PTSD). The authors concluded that the provision of an ICU diary is effective in aiding psychological recovery and reducing the incidence of new PTSD. | |
|--|---|--|

| | <p>Summary</p> <p>The results showed that protocolized weaning from mechanical ventilation, nurse led follow-up programmes, and an individualised eight-week home-based physical rehabilitation program were not statistically significant and clinically effective when compared to standard care. However, one study showed that provision of an ICU diary may be effective but this is just a single small trial which will require further validation to confirm these findings. Hence, this evidence does not invalidate the current guideline recommendations.</p> | |
|--|---|--|
| <p>Clinical area 2: Optimal time for initiating or delivering rehabilitation strategies/programmes to adult patients.</p> | | |
| <p>Clinical question</p> | <p>Summary of evidence</p> | <p>Relevance to guideline recommendations</p> |
| <p>Q: When is the optimal time for adult critical care rehabilitation?</p> <p>This includes:</p> <ul style="list-style-type: none"> •When is the optimal time for | <p>Through the high level RCT search two studies relevant to the clinical question were identified.</p> <ul style="list-style-type: none"> • One study ⁵ assessed the efficacy of combining daily | <p>No new evidence was identified which would invalidate current guideline</p> |

CG 83: Rehabilitation after critical illness

[19th April to 3rd May]

| | | |
|---|---|-------------------------|
| <p>initiating or delivering rehabilitation strategies/programmes to adult patients with physical and non-physical morbidities including psychological problems and cognitive deficits following a period of critical illness and associated with their treatment experience in critical care?</p> <p>Relevant section of guideline 2.2 Rehabilitation strategies/programmes</p> <p>Recommendations 1.1.6, and 1.1.16 - 1.1.19</p> | <p>interruption of sedation with physical and occupational therapy on functional outcomes in patients receiving mechanical ventilation in intensive care. The findings showed that a strategy for whole-body rehabilitation - consisting of interruption of sedation and physical and occupational therapy in the earliest days of critical illness- was safe and well tolerated, and resulted in better functional outcomes at hospital discharge, a shorter duration of delirium, and more ventilator-free days compared with standard care.</p> <ul style="list-style-type: none"> • One study ⁶ investigated whether a daily exercise session, using a bedside cycle ergometer, is a safe and effective intervention in preventing or attenuating the decrease in functional exercise capacity, functional status, and quadriceps force that is associated with a prolonged intensive care unit stay. The study showed that early exercise training in critically ill intensive care unit survivors | <p>recommendations.</p> |
|---|---|-------------------------|

CG 83: Rehabilitation after critical illness

[19th April to 3rd May]

| | | |
|--|--|--|
| | <p>enhanced recovery of functional exercise capacity, self-perceived functional status, and muscle force at hospital discharge.</p> <p>Summary</p> <p>Both the studies showed that commencing the interventions (physical and occupational therapy and a daily exercise session) early are beneficial to the patient, improve functional outcomes at hospital discharge and aid recovery of functional exercise capacity. This is in keeping the current guideline recommendations.</p> | |
|--|--|--|

A few ongoing clinical trials (publication dates unknown) were identified focusing on rehabilitation following critical illness, use of neuromuscular electrostimulation (NMES) for treatment or prevention of ICU-Associated weakness, rehabilitation among intensive care unit (ICU) survivors, impact of an aerobic exercise rehabilitation programme, evaluation of a rehabilitation complex intervention, and a trial of intensive versus standard physical rehabilitation therapy in the critically ill.

No evidence was identified that was relevant to research recommendations in the original guideline.

In conclusion, no identified new evidence contradicts current guideline recommendations.

Guideline Development Group and National Collaborating Centre perspective

A questionnaire was distributed to GDG members and the National Collaborating Centre to consult them on the need for an update of the guideline. The questionnaire was designed to ask GDG members their opinion on the use of the current guideline, whether they are aware of any new literature relating to areas covered by the guideline, the potential to make better use of resources, the potential for avoiding unlawful discrimination and whether they feel an update of the guideline is required. Six responses were received. Three respondents indicated that there was no new relevant literature that potentially changes current recommendations. Three respondents mentioned new evidence on nurse led intensive care follow-up programmes for improving long term outcomes from critical illness, early physical and occupational therapy in mechanically ventilated critically ill patients, and further evidence supporting the importance of early mobilisation after critical illness. In terms of ongoing research relevant to the guideline, one

CG 83: Rehabilitation after critical illness

[19th April to 3rd May]

9 of 15

respondent did not identify any but five respondents identified the following trials:

- HTA for early physical therapy.
- CPAX study being carried by Eve Corner from Chelsea and Westminster.
- REVIVE study.
- RECOVER study
- REMAIC study on rehabilitating muscles after Intensive Care.
- NIHR – for patient benefit study assessing mobilisation and amino acid supplementation.
- Aerobic exercise after critical illness.

Five respondents felt that there is insufficient variation in current practice and that the evidence available at this time does not warrant an update of the current guideline. But, one respondent said it should possibly be updated.

Implementation and post publication feedback

In total 12 enquiries were received from post-publication feedback, most of which were routine. Key themes included guidance in relation to the discharge of patients from accident and emergency departments; seeking help/resources for project work on improving post operative care, audit support of the guideline, plus requests for copyright permission, request on update of guideline.

This feedback did not contribute towards the development of the clinical questions as described above.

CG 83: Rehabilitation after critical illness

[19th April to 3rd May]

10 of 15

A field team implementation feedback report identified that the guidance was considered particularly difficult to implement, due mainly to the view that it required additional resources to implement the recommendations on follow-up. The guidance was therefore considered aspirational.

In summary, no new evidence was identified through post publication enquiries or implementation feedback that would indicate a need to update the guideline.

Relationship to other NICE guidance

The following NICE guidance is related to CG83:

| Guidance | Review date |
|---|--------------------|
| CG 103: Delirium: diagnosis, prevention and management (July 2010) | July 2013 |
| CG 92: Reducing the risk of venous thromboembolism (deep vein thrombosis and pulmonary embolism) in patients admitted to hospital. (January 2010) | January 2013 |
| CG 113: Generalised anxiety disorder and panic disorder (with or without agoraphobia) in adults. (January 2011) | January 2014 |
| CG90: Depression: the treatment and management of depression in adults (update). (October 2009) | October 2012 |

CG 83: Rehabilitation after critical illness

[19th April to 3rd May]

| | |
|--|---|
| <p>CG42: Dementia: Supporting people with dementia and their carers in health and social care. (November 2006)</p> | <p>April 2012</p> |
| <p>CG 56: Triage, assessment, investigation and early management of head injury in infants, children and adults. (September 2007)</p> | <p>An update of this guideline is currently in the process of being scheduled</p> |
| <p>CG 48: Secondary prevention in primary and secondary care for patients following a myocardial infarction. (May 2007)</p> | <p>February 2014</p> |
| <p>CG 32: Nutrition support in adults: oral nutrition support, enteral tube feeding and parenteral nutrition. (February 2006)</p> | <p>June 2014</p> |
| <p>CG 26: Post-traumatic stress disorder (PTSD): The management of PTSD in adults and children in primary and secondary care. (March 2005)</p> | <p>July 2014</p> |
| <p>CG 68: Diagnosis and initial management of acute stroke and</p> | <p>Currently under review (April 2012)</p> |

CG 83: Rehabilitation after critical illness

[19th April to 3rd May]

| | |
|---|-------------------|
| transient ischaemic attack (TIA). (July 2008) | |
| CardioQ-ODM (oesophageal Doppler monitor). Medical technologies guidance. (March 2010). | To be confirmed |
| Cardiac rehabilitation service. Commissioning guide. (March 2008) | To be confirmed |
| Related NICE guidance not included in CG83 | |
| None | |
| Related NICE guidance in progress | |
| Stroke rehabilitation. | April 2012 |
| Related NICE quality standard | |
| Stroke. Quality standard. June 2010. [Specific quality measures: Ongoing inpatient rehabilitation and ongoing rehabilitation] | Review date: TBC. |

Anti-discrimination and equalities considerations

No evidence was identified to indicate that the guideline scope does not comply with anti-discrimination and equalities legislation. The original scope contains recommendations for adults with rehabilitation needs as a result of a period of critical illness.

Conclusion

CG 83: Rehabilitation after critical illness

[19th April to 3rd May]

No additional areas were identified through the process which were not covered in the original guideline scope or would indicate a significant change in clinical practice. There are no factors described above which would invalidate or change the direction of current guideline recommendations. The rehabilitation after critical illness guideline should not be updated at this time.

2. Review recommendation

The guideline should not be updated at this time.

The guideline will be reviewed again according to current processes.

Centre for Clinical Practice
16.04.12

Appendix I

1. Blackwood B, Alderdice F, Burns-Karen EA et al. (2010) Protocolized versus non-protocolized weaning for reducing the duration of mechanical ventilation in critically ill adult patients. *fff* .
2. Cuthbertson BH, Rattray J, Campbell MK et al. (2009) The PRaCTICaL study of nurse led, intensive care follow-up programmes for improving long term outcomes from critical illness: A pragmatic randomised controlled trial. *BMJ* 339:1016.
3. Elliott D, McKinley S, Alison J et al. (2011) Health-related quality of life and physical recovery after a critical illness: A multi-centre randomised controlled trial of a home-based physical rehabilitation program. *Critical Care* 15.
4. Jones C, Backman C, Capuzzo M et al. (2010) Intensive care diaries reduce new onset post traumatic stress disorder following critical illness: a randomised, controlled trial. *Critical Care (London, England)* 14:R168.
5. Schweickert WD, Pohlman MC, Pohlman AS et al. (30-5-2009) Early physical and occupational therapy in mechanically ventilated, critically ill patients: a randomised controlled trial. *Lancet* 373:1874-1882.
6. Burtin C, Clerckx B, Robbeets C et al. (2009) Early exercise in critically ill patients enhances short-term functional recovery. *Critical Care Medicine* 37:2499-2505.