

SHORT REPORT

Awareness of success factors and barriers to early mobilisation of ICU patients

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Abstract

Despite all the evidence underlining the benefits of early mobilisation in the ICU, barriers are still common in clinical situations. Participants of two roundtable conferences were asked to identify the strengths and weaknesses of early mobilisation in four domains pre-identified by experts in the field. For successfully implementing early mobilisation, there seemed to be a need for a driving force on the ward, a patient-coordinator at the patient's bedside, modern equipment and a good work environment. Barriers to early mobilisation are identifiable on two levels: institution-related barriers and patient-related barriers. Successful implementation requires locally adapted tailored strategies.

Introduction

Muscle weakness occurs frequently in patients admitted to the intensive care unit (ICU). Early mobilisation of those patients is feasible, safe and may be beneficial.^[1-6] Early mobilisation includes active activities (such as sitting, standing and ambulation), as well as passive exercises (passive joint movements and cycling).^[3,7] The onset of 'early' may vary from 24 hours to 7 days after admission.^[3,8] Despite the evidence and the practical guideline endorsed by the Dutch Society of Physiotherapists,^[7] barriers to implementing early mobilisation of ICU patients are still common, leading to a gap between evidence and practice. For successful implementation in the ICU, it is crucial to understand the patient- and institution-related barriers and define strategies to overcome these barriers. We report the results of two roundtable conferences aiming to identify both success factors and barriers to accomplish early mobilisation in critically ill patients.

Methods

In order to identify the success factors and barriers of early mobilisation, we undertook the following steps: 1) selection

of participants in two separate roundtable conferences in the Netherlands; 2) identification of perceived potential strengths and weaknesses by all participants on four domains pre-identified by two experts in the field (PS, DdRM); and 3) rating the strengths and weaknesses of all topics raised by the participants on the four pre-identified domains.

The roundtable conferences took place at two locations (Rotterdam and Zwolle) in January 2016. These invitational conferences were targeted at various professional disciplines (intensivists, ICU nurses, physiotherapists and exercise physiologists) and consisted of interactive presentations concerning the state of the art on early mobilisation, the use of modern (technological) equipment for early mobilisation, with a final discussion about early mobilisation in the different ICUs. Participants took part in only one of the conferences and were asked to name all their perceived relevant strengths and weaknesses in four arbitrarily pre-identified domains, namely 1) the organisation of early mobilisation in daily care, 2) the ICU nurse as a patient-coordinator of early mobilisation, 3) the need for an adjustable bed (a multi-function bed with upright seated position, and riser function to allow patients to raise up into a near standing position) in early mobilisation, and (4) the perceived importance of early mobilisation. The relevant factors mentioned were summarised by PS and subsequently sent to all participants for rating of perceived importance. Participants were asked to score the items on a 10-point Likert scale, where 0 meant 'not relevant' (unimportant) and 10 meant that the item was considered 'very important'. The participants were blinded to each other's responses. Descriptive statistics were generated (median score and interquartile ranges (IQR) (P25, P75)).

Results

There were 15 participants to the roundtable conferences: 10 intensivists, 3 physical therapists, 1 ICU nurse and 1 exercise

physiologist. Participants were predominantly working in non-academic teaching hospitals (n = 12), while 3 participants were working in an academic setting. The participating centres were divided over the Netherlands and are named in *table 1*. There was a response rate of 100% to the strength-weakness analysis. The results of that analysis are displayed in *tables 2-5*.

Table 1. Participating hospitals in the roundtable conferences

ACADEMIC	NON-ACADEMIC
Erasmus Medical Center	Ikazia Hospital, Rotterdam Maasstad Hospital, Rotterdam Deventer Hospital, Deventer Gelre Hospital Apeldoorn Isala Hospital, Zwolle Hospital Gelderse Vallei, Ede Medical Spectrum Twente, Enschede ZGT Hospital, Almelo

Table 2. Analysis on the perceived strengths and weaknesses regarding the organisation of early mobilisation (EM) in daily care

Strengths	Median	P25	P75
Driving forces (initiators)	9	8	10
Intensivists' view of EM	9	8	9.5
Patient feedback at ICU aftercare	8.5	7.25	9
Specialised EM team (working group)	8	6	9.5
Priority for managers	8	6.5	8.5
Education	8	7	8.5
Dedicated physiotherapists	8	8	9
Good equipment	8	7.5	9
Financial possibilities	8	7	9
Creativity, innovation	8	8	9
Agreement in clinicians on treatment and start of EM	8	8	9
Dedicated team	8	8	9
Patient is rewarded (better functioning, faster recovery)	8	6	8.5
Relatives involved in mobilisation program	8	8	8.75
All involved staff can start EM independently	7.5	7	8
Weaknesses	Median	P25	P75
Time-intensive	8	6	8.5
Unfamiliarity	8	6.5	8
Inadequate materials	7	4	8
Team too big	7	3	8
Difficult to monitor	6	4.5	8
Constant and rapid development of new materials and/or knowledge	6	5.5	7.5
Risk of complications	6	3.5	6.5
High turnover of patients	6	3	7.5
No attractive acute (ICU) care, but start of rehabilitation	5.5	3.25	7.75
Unmotivated patients	5.5	3	6

Table 3. Perceived strengths and weaknesses for the ICU nurse as a patient-coordinator of early mobilisation (EM)

Strengths	Median	P25	P75
Most directly involved	8	7	9
Contact with the patient's relatives	8	7	8
Continuity of services during the day	8	5.5	8
Insight into the vital status of the patients on that day	8	6	8
Knowledge of important lines and the endotracheal tube	8	6.5	9
Do the work at the bedside (take care of the patient 24/7)	8	5.5	8.5
Relationship with the patient	7	7	8.5
Expert in patient-coordination (already coordinate a daily schedule)	7	5.5	8
Leaves the intensivist more time for the main issues	6	5	7.5
Weaknesses	Median	P25	P75
Schedule of the patient: where to put EM?	8	7	8.75
Not able to assess patient's condition well	7	3.5	8
Diversity of nurses	7	6.5	8
No specific education	7	4	8
Possible overload for ICU nurses by adding another task	6.5	6	7.75
Goals unclear	6	4	7
Insufficient motivation	6	5.5	7
Short of staff	6	4	8
Physiotherapists not always part of the treatment	5.5	2.5	8

Table 4. Perceived strengths and weaknesses for the need of an adjustable bed* in early mobilisation (EM)

Strengths	Median	P25	P75
Less labour-intensive	9	8	9.75
Patients can look at something else than the ceiling	8	6.5	9
Even earlier start to mobilisation	8	7	9
Easy to operate	8	6.5	9
Less time-intensive	8	6	9
Obese patient with an ICU acquired weakness is easier to mobilise by staff	7	5.5	8.5
Can be controlled by patient himself	7	6	8
Possible to assess body (trunk) balance	7	5	7.5
Less risk	7	5	8
Can quickly adjust body position to improve comfort	7	6.5	8.5
Less problems with lines and/or endotracheal tube	7	5.25	8
Body-position can be changed without self-movement of the patient	6	4.5	8
A patient can be mobilised without getting out of bed	6	4	8
Weaknesses	Median	P25	P75
Costs	8	5.5	8.5
A patient is mobilised in bed, might have different/less effect	8	8	8
Less motivation to mobilise otherwise	8	7.25	9
Need for learn how to operate the bed	7	6	8
Unclear which patients benefit from an adjustable bed	7	5.5	8.75
ICU nurses become more passive	6	3.5	8
Risk of mobilising patients too quickly (because mobilisation is available to all bedridden patients)	2	1.5	4

*Adjustable bed: a specific ICU bed, designed for multiple positions, including chairing

Table 5. Perceived strengths and weaknesses for the perceived importance of early mobilisation in the ICU

Strengths	Median	P25	P75
Improves patient's strength and coordination	9	8	9.5
Positive effect on patient's mental state	8	7.5	9.5
Prevention of complications (e.g. contractures and pressure ulcers)	8	7	8.75
Reduces ICU length of stay	8	6.25	8.75
Improves circadian rhythm	7.5	6	8
Reduces healthcare consumption within 1 year after ICU admission	7.5	5.25	8.75
Patient is seen as a person	7	5	8.5
Evidence-based	7	6	8
Reduces delirium	7	5	8
Reduces atelectasis, more rapid weaning	7	6.25	8.5
Improves functions of the autonomic nervous system	6.5	6	7.75
Cost-effective	6.5	5.25	7.75
Weaknesses	Median	P25	P75
Requires a different mindset of the ICU nurses	9	7.5	9
Need for equipment	9	7.5	9.5
No priority for managers	8	3.5	8.5
Need for a sedation protocol	8	5	9
Requires a mobilisation team (working group)	8	4.5	9.5
Requires a dedicated team of physiotherapists	8	6.5	9
Requires education for ICU nurses, physiotherapists and other staff	8	6.5	9
Labour-intensive	7	5.5	8.5
Improves the oxygen consumption and patient fitness	6	4.5	7
Guarantee continuity of EM	5	4	7.5
Lack of 'long-term' patient vision of the intensivists	5	2.5	7
Problem with the lines (i.e. IV)	5	2.5	6.5
Fear on the part of the patient	5	5	6.5
Not applicable in certain conditions (i.e. unstable fractures)	5	3.25	7
Time of EM difficult to determine	4	3	6
Self-extubation	4	3	5.5
The night shift of ICU nurses wants rest	4	1.5	8
High risk	3	2	6

Discussion

This roundtable conference showed that for successfully implementing early mobilisation there is a need for a driving force on the ward, a patient-coordinator at the patient's bedside, modern equipment and a good work environment (i.e. availability of education, materials and finances). Previous studies named the driving force as '(change) champions' and their responsibilities for implementing early mobilisation in the ICU as part of the creation of an early mobilisation culture, making this more a priority and helping to overcome other institutional barriers.^[9-11] The second important factor was the presence of a patient-coordinator at the patient's bedside. In daily patient

care, a nurse is the designated person as patient-coordinator for early mobilisation. Multiple authors have previously described the importance of a multidisciplinary team to establish a change in the ICU culture and ensure patient safety.^[9,12,13] In previous studies a large number of barriers for implementing early mobilisation seem to be patient-related, such as pain, high severity of illness or the presence of ICU devices (i.e. mechanical ventilation). In this strength-weakness analysis the opposite stands out. Carrying out early mobilisation is considered to be much more dependent on the work environment of the staff than the staff members themselves. Therefore, the availability of modern equipment and a good work environment were also considered important factors. Although the work environment may be improved with the availability of modern equipment, such as an adjustable ICU bed specifically designed to facilitate early mobilisation, participants rate the additional costs as an important implementation barrier.

Our analysis and report has several limitations. First, the number of participants questioned is limited, especially the number of ICU nurses. The planning and organisation of the roundtable conferences was the cause of this. It may imply selection bias of participants, although we think it is unlikely that this explains the results in view of the large diversity in the participants. Secondly, all participants were selected because they were known to be involved in active early mobilisation programs at their own institution (i.e. known nationally because of public presentations and/or publications on early mobilisation or active in networks for early mobilisation in the ICU). The participants' level of expertise was not taken into account in the selection process. The authors believe that, if an institution is known for its high quality mobilisation program, the level of knowledge on early mobilisation of the employees is probably sufficient to participate in the roundtable conferences. The participants were asked to rate influencing factors on four domains pre-identified by the authors. As such, participants may give a reasonable picture about strengths and weaknesses if considering the implementation of early mobilisation in the ICU setting. Although the domains were identified by two experts in this field, pre-identifying the domains of interest in this survey may lead to the loss of other important topics influencing early mobilisation. A strength of the data is the multidisciplinary approach, which makes the results more interesting because they probably better reflect actual ICU practice rather than best practice.

In conclusion, the analysis of these semi-structured roundtable conferences shows that early mobilisation may be successfully implemented if a good working environment is created. Barriers identified in this report are mostly institution-related, not staff-member related. A successful mobilisation program probably requires a driving force in the ICU, a patient-coordinator with the support of the whole team and the availability of good equipment.

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