‘Start to move ASAP® in the ICU: Proposition of the UZ LEUVEN protocol
Beatrix Clerckx

- Prolonged ICU stay is devastating and often results in long-term functional and cognitive impairment

- Recent studies confirmed that early mobilisation of mechanically ventilated patients is feasible and safe and shortens ICU and hospital length of stay.

Purpose protocol

- Establishing an early mobility and physical activity protocol:
  - requires a multidisciplinary team approach;
  - facilitates a culture in the ICU to reduce immobility of critically ill patients;

encourages teamwork

- change in mentality

Purpose protocol

- Establishing an early mobility and physical activity protocol:
  - requires a multidisciplinary team approach;
  - facilitates a culture in the ICU to reduce immobility of critically ill patients;
  - offers a variety of interventions to start body positioning and physiotherapy shortly after ICU admission.
LEVEL 0: Measurement
- Each level consists of a variety of body positions and modalities for physical training and early mobility.
- Each level is determined by assessment using objective measurements.
- Delivery of daily mobility or physical activity from day 2 after admission to the ICU.
- 6-level program.

UZ LEUVEN 'Start to Move ASAP'

Adequacy score

1. Open and close your eyes.
2. Lick at one.
3. Open your mouth and put out your tongue.
4. Hold your head.
5. Raise your hands when I have counted up to five.

Basic assessment

Cardiorespiratory unstable:
* MAP < 60mmHg or
* \( \text{FiO}_2 > 60\% \) or
* \( \text{PaO}_2/\text{FiO}_2 < 200 \) or
* RR > 30 bpm

Neurologically unstable
- Acute surgery
- Temp > 40°C

Functional assessment

MRC-scale: 0-5 score

0 = No visible contraction
1 = Visible contraction without movements of the limbs
2 = Movements of the limbs but not against the gravity
3 = Movement against gravity over (almost) the full range
4 = Movement against gravity and resistance
5 = Normal

MRC TOTAL SUMSCORE

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<th>Item</th>
<th>Right</th>
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<th>Score</th>
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Score < 48/60: "significant muscle weakness"

Berg Balance score

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<tr>
<th>Stage</th>
<th>Description</th>
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<tr>
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<td>Able to support standing for 1 minute</td>
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<tr>
<td>2</td>
<td>Able to support standing for 2 minutes</td>
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<td>3</td>
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<tr>
<td>4</td>
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De Jonghe B, JAMA 2002

Score < 48/60: "significant muscle weakness"
**ASSESSMENT OF AMBULATION**

**Through use of 'RELIABLE' MEASUREMENTS**

**CLOSE TO FULL COOPERATION**

S5Q

≥

4/5

NO COOPERATION

S5Q

= 0

**LEVEL 0**

PASSES BASIC ASSESSMENT

3

FAILS BASIC ASSESSMENT

2

**BASIC ASSESSMENT =**

- Cardiorespiratory unstable:
  - MAP < 60mmHg
  - \( \text{FiO}_2 \) > 60%
  - \( \text{PaO}_2 / \text{FiO}_2 \) < 200
  - RR > 30 bpm

- Neurologically unstable

- Acute surgery

- Temp > 40°C

**LEVEL 3**

**Berg Balance score**

**Sit to stand**

- 4: able to stand without using hands and stabilize independently
- 3: able to stand independently using hands
- 2: able to stand using hands after several tries
- 1: needs minimal aid to stand or stabilize
- 0: needs maximal aid or maximal assist to stand

**Standing unsupported**

- 4: able to stand safely for 2 minutes
- 3: able to stand 2 minutes with supervision
- 2: able to stand 30 seconds unsupported
- 1: needs several tries to stand 30 seconds unsupported
- 0: unable to stand 30 seconds unsupported

**Sitting with back unsupported but feet supported on floor or on a stool**

- 4: able to sit safely and securely for 2 minutes
- 3: able to sit 2 minutes under supervision
- 2: able to sit 30 seconds
- 1: unable to sit 30 seconds
- 0: unable to sit without support 10 seconds

**MRC-scale: 36/60**

- 0: No visible contraction
- 1: Visible contraction without movements of the limbs
- 2: Movements of the limbs but not against the gravity
- 3: Movement against gravity over (almost) the full range
- 4: Movement against gravity and resistance
- 5: Normal

**LEVEL 0**

**LEVEL 1**

**LEVEL 2**

**LEVEL 3**

**LEVEL 4**

**LEVEL 5**

**Each level = Body Positioning**

**BODY POSITIONING**

Jointly with nursing staff

- 2hr turning
- Passive transfer bed to chair
- Sitting out of bed
- Standing with assist (2 x pers)

**05.11.13**
Each level = physiotherapy

Passive/Active range of motion
Resistance training arms and legs
Active leg and/or arm cycling in chair or bed
Walking (with assistance/frame)
NMES

Case: level?

Level 3

PHYSIOTHERAPY:

Level 4

LEVEL 0

LEVEL 5

LEVEL 1

LEVEL 2

LEVEL 3

LEVEL 4

LEVEL 5

05.11.13

5
**PHYSIOTHERAPY:**

- Temp > 40°C
- Acute surgery
- Unstable

**BASIC POSITIONING**

FAILS = at least 1 risk factor present

**ASSESSMENT**

FAILS BASIC safety

**LEVEL 0**

- 0
- 0
- Protocol.

**subdivided in**

- 0
- 0
- Variable

**Discussion**

- In the decision making of the levels, most of the patients (2011) were subdivided in level 1. These results appeared 4 months after the implementation of the protocol.

- Where are those patients located after 2 years of implementing the protocol, in other words, is there a culture change, are we moving the patients faster out of the bed?

**Evaluation**

- The proposition of the protocol is discussed, adapted and evaluated by multidisciplinary team members.

- For 4 months the different levels for each ICU patient were weekly saved in a database:

  - Level 0: 14%
  - Level 1: 39%
  - Level 2: 24%
  - Level 3: 16%
  - Level 4: 10%
  - Level 5: 7%

- The inter-observer agreement of the levels was investigated by two observers independently. Good inter-observer agreement was reached (Kappa coefficient was 0.895 with p < 0.0001).

**levels 2011-2013**

- 2011: during 16 weeks, medical and surgical ICU patients from day 2
- 2013: during 16 weeks, medical and surgical ICU patients from day 2 with an expected stay of 5 days
Level 0: = pat. in 2013: a multidisciplinary approach of the basic assessment: before contra-indication and now risk factor
Level 1: = pat. in 2013: coming from level 0?
Level 2: = pat. in 2013: culture change?
Level 3, 4, 5: = pat. in 2011: inclusion from day 2, before day 7 to the ward?

**Conclusion**: Culture change?

- 2011-2013: a slight tendency to perceive ?
- We struggle still with perceived 'barriers' to facilitate rehabilitation on the ICU: too sick, too sedated, too delirious, limited staffing, prioritization of rehab. patients, limited knowledge of ICU staff, equipment limitations.
- Despite of presentations especially for the nursing group, the most important and effective method to make the culture change seems the bedside individual coaching.

**Conclusions**

- Through the use of a protocol more patients can probably be activated and ambulated faster.
- Sensitization and instruction of the multidisciplinary team members is very important to implement safe and feasible early physical activity and mobilisation.
- Objective measurements to facilitate the identification of the levels are needed.
- Further research to evaluate the early activity and mobility protocol is warranted.

**Thanks for your attention!**