

OUT OF BED EXPERIENCES:

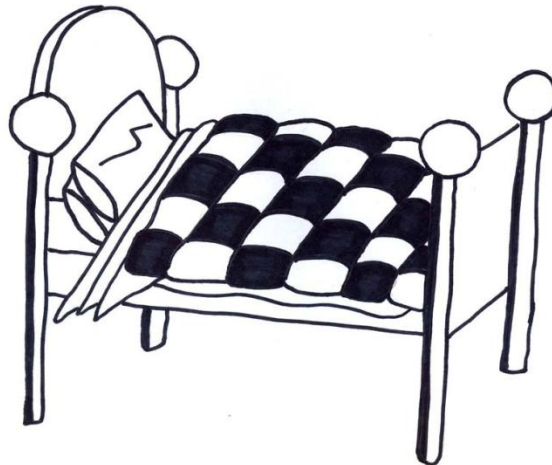
Does Early Mobilization Improve Functional Recovery in Clients with Acute Stroke?

Laura Swancar, Occupational Therapist
Northwestern Ontario Regional Stroke Network
April 11, 2013

- Thank you -
 - Northwestern Ontario Stroke Network
 - Alberta Stroke Strategy

Goals for the session

- Improve understanding of early mobilization: what is it, how is it done, how safe is it?
- Review the best practice guidelines and recent evidence on early mobilization following stroke
- Explore inter-professional roles related to early mobilization



Warm up your brain



- 1. AVERT is a type of mouthwash? True or False
- 2. A TILT Chair is ride at Canada`s Wonderland? true or false
- 3. Stroke units are expensive and unnecessary? T or F
- 4. Early mobilization improves recovery following stroke? true or false or maybe
- 5. You are more likely to survive and possibly thrive following a stroke if you
 - A are admitted to a Stroke Unit
 - B are assessed early by rehab (OT,PT,SLP)
 - C receive more recommended processes of care such as early mobilization
 - D All of the above.



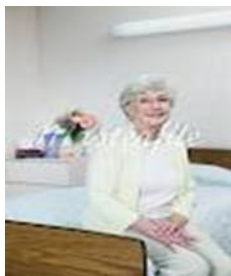
What is Early Mobilization?

- “the process of getting a patient to move in the bed, sit up, stand, and eventually walk”, Lindsay et al., 2010.



Resources and equipment:

- Tilt wheelchairs
- Mechanical lifts in good working order and available slings
- Well designed beds to allow sitting and standing
- Call bell systems that can be accessed outside of the bed
- Bariatric needs
- Available staff – ie. OT, PT, Nursing, Rehab assistants
- Timely and open communication between team members including the client and family



What are the possible risks with mobilizing too early?

- Increased size of hemorrhage
- Increased mass effect
- Fall risk
- Cardiac problems, hemodynamic and blood pressure extremes
- Currently - all acute stroke patients are on bedrest x 24hours to ensure medical stability and avoid complications, however – some may benefit from mobilizing earlier
- Need for protocols/guidelines for clinicians to follow

Mr. Eddy Smith

- 54 year old man, construction/bush worker from small community northeastern ontario
- Admitted to TBRHSC with stroke symptoms:
 - Right facial droop, Right hemiplegia and hemisensory loss
 - Expressive and receptive aphasia
 - Past medical history: Left above knee amputation; alcohol use
 - CT scan – acute left middle cerebral infarct
 - Day 2-5, client increasingly agitated, on alcohol withdrawal protocol
- *Would you recommend trying early mobilization with Eddy, and would it make any difference in his recovery?*

Does early mobilization out of bed improve functional recovery for clients with acute stroke?

Searched for evidence on

- Safety and feasibility
- Details of early mobilization process
- Articles selected based on strength of study design, recent publication, relevance for my clinical practice in Thunder Bay.



Review of the evidence: What do the stroke guidelines say?

- ***Canadian Best Practice guidelines:***

“All patients admitted to hospital with acute stroke should be mobilized as early and as frequently as possible [Evidence Level B] and preferably within 24 hours of stroke symptom onset, unless contraindicated [Evidence Level C].”

“All patients.....should be assessed by rehabilitation professionals as soon as possible after admission [Evidence Level A], preferably within the first 24-48 hours [Evidence Level C].”



- Variation in practices and clear gap in evidence base to guide early mobilization activities.
- BPGuidelines identify ``need for a coordinated and consistent approach to early mobilization``
- Evidence Based Review of Stroke Rehabilitation:
 - ``There is strong (level 1a) evidence that very early mobilization following stroke helps reduce medical complications.``

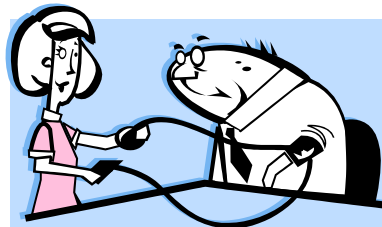


Best Practice guidelines on Stroke Unit Care

- Stroke Unit care:
 - ``reduces the likelihood of death and disability by as much as 30 % for men and women of any age with mild, moderate, or severe stroke``.
 - ``carries with it some of the strongest evidence for improved outcomes available``
 - Typical components of care described in stroke unit trials:
 - assessment—medical evaluation and diagnostic testing (including CT scanning), early assessment of nursing and rehabilitation therapy needs;
 - early management policies—early mobilization, prevention of complications (e.g. pressure area care, careful positioning and handling), treatment of hypoxia, hyperglycemia, fever and dehydration; and
 - ongoing rehabilitation policies (**coordinated interprofessional team care**, early assessment of needs after discharge).

Aries et al. (2012). Exaggerated postural blood pressure rise is related to a favorable outcome with acute ischemic stroke. *Stroke*, 43(1), 92-96.

- Purpose: looked at how changes in physiological parameters (ie. blood pressure, heart rate, oxygen saturation) in upright positioning day 1-3 post stroke affect functional outcome after three months of an acute stroke`
- Design: Prospective cohort study, N=167
 - Measurements taken on day 1-3 for positions of supine, sitting and standing.
 - Examined whether significant blood pressure rise or fall was associated with a favourable outcome at 3 months on Rankin scale.



Aries et al.

- Findings:
 - Significant blood pressure rise day 1-3 was independently associated with a favorable outcome at three months.
 - No adverse effects of early mobilization were found.
- Take home:
 - EM safe, improved outcome for those with BP rise.
 - Functional outcome tool was limited – Rankin scale, which misses many consequences of stroke recovery such as mild cognitive impairment, communication difficulties.



Berhardt et al (2009). Very early versus delayed mobilization after stroke. John Wiley & Sons, Ltd. (Cochrane review).

- Purpose: This systematic review set out to determine the benefits and harms of very early mobilization, commenced within 48 hours, compared with conventional care following stroke.
- Design: Systematic review, included only RCT`s free of confounding factors.
 - 39 relevant trials, only 1 study included: Phase II AVERT safety and feasibility study
 - n=71; compared one group that received em within 24 hours to control group that received conventional stroke unit care

Bernhardt et al.

- Findings:
 - Insufficient evidence to support or refute routine use of VEM
 - No significant harms in either group, lower rate of adverse events in VEM group.
- Take home:
 - Inconclusive results but no adverse effects.
 - Study gave details of mobilization process:
 - mobilizations with two team members to assist the patient to be upright and **out of bed**, sitting, standing or walking
 - at least twice per day, six days per week.
 - monitored blood pressure, heart rate and temperature prior to each mobilization during the first three days.
 - frequent mobilization continued for up to fourteen days post stroke or discharge.

Cumming et al. (2011). Very early mobilization after stroke fast-tracks return to walking: Further results from the phase II AVERT randomized controlled trial. *Stroke*, 42(1), 153-158.

- Purpose:

- Looked at whether earlier out of bed activity following stroke would reduce time to unassisted walking and improve independence in activities of daily living.

- Design:

- RCT – further results from the safety and feasibility study, same 71 clients.
- Primary outcome – no. of days to return to 50 meters unassisted walking
- Secondary outcomes – Barthel Index and Rivermead Motor Ax at 3 and 12 months

Cumming et al.

- Findings:
 - VEM group returned to walking faster (3.5 days versus 7 days)
 - VEM group better motor fx at 3 AND 12 months
 - VEM group better ADL fx at 3 months, no difference at 12 months
- Take home:
 - **Supports routine use of VEM, leads to improved walking and functional recovery.
 - HOWEVER - Be cautious about early discharge from acute care, does not address other significant stroke consequences and safety concerns – ie. aphasia, cognition, impulsivity, neglect, visual issues – these clients still deserve opportunity of more intense inpatient rehab.



Sundseth et al. (2012). Outcome after mobilization within 24 hours of acute stroke: A randomized controlled trial. *Stroke*, 43(9), 2389-2394.

- Purpose: To identify whether very early mobilization within 24 hours of stroke onset reduces poor outcome 3 months post stroke compared with first mobilization between 24 and 48 hours.
- Design: Prospective RCT, n=56
 - Primary outcome – proportion of patients with poor outcome on Rankin scale
 - Secondary outcomes – death rate, change in neuro impairment (NIHSS) and dependency (Barthel Index), type and number of complications in 3 months.

Sundseth et al.

- Findings:

- Inconclusive due to small numbers and a large number of drop outs, most in VEM group.
- Non-significant trend to poor outcome in VEM group
- May not have been enough difference between two groups since authors describe mobilization `several times per day` as key feature of stroke unit care in Scandinavia.

- Take Home:

- Trend to increased death and dependency in the VEM less than 24 hours group not found in other studies – warrants further study with larger numbers.

Ingeman et al. (2011). Processes of care and medical complications in patients with stroke. *Stroke*, 42(1), 167-172.

- Purpose: Examined association between processes of care and the risk of medical complications.
- Design: Population based follow up study, n= 11757
 - Looked at processes of care such as: early admission to a stroke unit, early initiation of antiplatelet or oral anticoagulant therapy, early CT/MRI scan, and early assessment by a physiotherapist and occupational therapist, assessment of nutritional risk and swallowing function and early mobilization.
 - Compared to complications such as: pneumonia, urinary tract infection, pressure ulcer, falls, deep venous thrombosis, pulmonary embolism and severe constipation.

Ingeman et al.



- Findings:

- Lowest complication rate in patients who received all relevant processes of care.
- ``inverse dose-response relationship between no. of processes of care received and risk of complications``
- Early mobilization independently associated with lowest risk of medical complications.

- Take Home:

- Large population based design gives wide perspective on stroke care and impact on acute clients with stroke
- No details on timing or intensity of em, except that it occurs in first 3 days of admission.

Putting it all together

- **CBPG** and **EBRSR** support use of em and Stroke Units
- **Safety:**
 - 3 out of 4 studies found no adverse effects
 - Stroke unit care – strong evidence, decreases complications
- **Improved Functional Recovery:**
 - 2 out of 4 studies showed improved function
 - 2 out of 4 studies inconclusive
- **Suggested protocols/Feasibility:**
 - 4 out of 4 studies gave some kind of protocol, some more detailed than others
 - Processes of care study was vague about definition of em

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- *Think about your role on the team – how can you contribute to early mobilization with Eddy?*

Inter-disciplinary Team Roles

- OT
- PT
- SLP
- Nursing
- Physician
- Client and family
- Dietician
- SW

Inter-disciplinary Team Roles

- PT – bed mobility, transfers, positioning, ambulation, balance
- OT – bed mobility, transfers, seating, positioning, safety strategies
- SLP – communication of needs, following instructions, safety, positioning for feeding/swallowing
- Nursing – transfers, integration into ADL's and care, skin issues, assist with IV, catheter, medication schedule (ie pain meds)
- Physician – determine medical stability, cause of stroke and plan of care
- Client and family – provide supervision and support, courage!
- Dietician – tube feeds – schedule, ie nocturnal feeds
- SW – emotional support
- All – COMMUNICATION, client and family education and establish trust

Future – what's coming?

- Watch for the Phase III AVERT study coming in the next few years.
- Large, international prospective RCT based in Australia
- Will look at a number of meaningful outcomes



Summary and Conclusions

- **Take home message –**
- Early mobilization seems to be beneficial and safe for most medically stable clients
- Communicate with team, revisit the client`s status frequently
- Never stop learning – every client teaches you something, reflect and review every day what could be done better next time

Answers

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References and Resources

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- Ingeman et al. (2011). Processes of care and medical complications in patients with stroke. *Stroke*, 42(1), 167-172.

References continued

- Canadian Best Practice Guidelines
www.strokebestpractices.ca
- Evidence Based Review of Stroke Rehabilitation
www.ebrsr.com

Questions?

- Contact info:

Laura Swancar
swancarl@tbh.net

