UTILIZATION AND OUTCOME OF EARLY MOBILIZATION PROGRAM IN NEURO INTENSIVE CARE UNIT OF A DEVELOPING COUNTRY

Presenter
DR SAMBIT SAHU
Consultant Critical Care
Kims Hospital
HYDREBAD, INDIA
BACKGROUND

BENEFITS OF EARLY MOBILITY PROGRAM (EMP)

- Improved outcome at 1 yr post ICU
- Reduced delirium.
- Improved functional outcomes
- Decreased MV days
- Decreased hospital days
- Decreased cost of care

Schweickert WD, Lancet 2009
Only 3% of ICU patients were turned as per required standards

Only 50% had some change in body position

The average time between manual turns were 6.85 ± 3.3 hr

“EMP IN CRITICALLY ILL IS SAFE....”

- Schweikert WD, *Lancet* 2009;373:1874
Purpose:
- To evaluate an early mobilization program for adult ICU patients in a Neuro ICU in South India.

Methods:
- Retrospective analysis of data (January 2014 to January 2015).
- EMP was compared to those who were not referred (Controls).
- Outcomes variables included length of stay in NICU, rate of re-admission to NICU and absolute number of complications related to prolonged hospitalization.
- Analyses included comparative statistics.
ICU Adult Early Mobilization Protocol

**PRECAUTIONS**
- Continuous dialysis
- VTE
- Lumbar drain
- External ventricular drain
- Plastic surgery
- Orthopedic surgery
- RASS +3

If precautions are present, discuss with team prior to initiating mobilization activity.

**ARE ANY CONTRAINDICATIONS PRESENT?**
- ICP ≥ 15
- RASS +4
- Acute or Uncontrolled Intracranial Event
- Fio2 ≥ 0.85 on invasive mechanical ventilation
- PEEP ≥ 15
- VDR or HFOV
- Unsecured airway
- Active cardiac ischemia
- Uncontrolled arrhythmias
- Blood pressure instability despite vasopressors
- Unstable fracture

**If poor tolerance during 2 consecutive mobilization activities**

**SIGN OF INTOLERANCE**
(those which do not resolve within 5-10 minutes)
- RR > 40
- SpO2 < 88%
- MAP < 50 or > 130
- HR < 50 or > 130
- Development of any contraindications

Ensure ETT or tracheostomy is secure before moving patient. Call Respiratory Therapy if assistance is needed.

Evaluate for precautions

RN to Assess Mobility Level every 12 hours and proceed with mobilization therapy

Patient tolerates mobilization therapy

Re-Assess Mobility Level every 12 hours. Continue with mobilization therapy and progress or regress patient to appropriate level

Re-evaluate in 24 hours

Patient developed signs of intolerance during therapy

Suspend Activity and re-evaluate in 4-8 hours
RADIOLOGICAL IMPROVEMENT

After “ONE” Session
Mobilization activities* per patient day:

- Nursing: increased by 31%
- Physical Therapy: increased by 78%
- Speech Therapy: increased by 40%

*Mobilization activities include: bed in chair position, dangle EOB, OOB, ADL and ambulation
RESULTS

- 396 patients admitted to NICU.
- 112 (28.2%) were referred for EMP, with 104 out of 112 patients diagnosed of CVA.
- Patient characteristics were similar between the groups.
- The median time from ICU admission to EMP initiation was three days.

*Mobilization activities include: bed in chair position, dangle EOB, OOB, ADL and ambulation*
**RESULTS**

- Patients in EMP group had a mean two days shorter length of stay in NICU (p=0.02); were less likely to be re-admitted to the NICU (p < 0.001).
- Similarly, patients in the EMP group had decreased number of hospital-acquired pressure ulcer, ventilator-associated pneumonia, depression, and hostility (all p ≤ 0.002).
- Moreover, the percentage of patients independent for activities of daily living at discharge was higher in EMP group (51% vs 71%; p=0.047).
# Results

<table>
<thead>
<tr>
<th>Variable</th>
<th>EMP (n=112)</th>
<th>Control (n=284)</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>59.73 ± 8.23</td>
<td>57.17 ± 9.37</td>
<td>0.875</td>
</tr>
<tr>
<td>Male (%)</td>
<td>79.5%</td>
<td>74.01%</td>
<td>0.545</td>
</tr>
<tr>
<td>CVA (Infarct) (%)</td>
<td>38.63%</td>
<td>40.94%</td>
<td>0.859</td>
</tr>
<tr>
<td>CVA (Haemorrhage) (%)</td>
<td>15.90%</td>
<td>13.38%</td>
<td>0.801</td>
</tr>
<tr>
<td>Others Diagnosis (%)</td>
<td>45.45%</td>
<td>45.66%</td>
<td>1.000</td>
</tr>
<tr>
<td>Death (%)</td>
<td>0.00%</td>
<td>4.72%</td>
<td>0.340</td>
</tr>
<tr>
<td>Length of Stay in ICU (Weeks)</td>
<td>1.35 ± 0.55</td>
<td>1.80 ± 0.80</td>
<td>0.020</td>
</tr>
<tr>
<td>Re-admission to ICU (%)</td>
<td>2.27%</td>
<td>14.90%</td>
<td>0.027</td>
</tr>
<tr>
<td>ADL Independent at Discharge (%)</td>
<td>71.04%</td>
<td>50.92%</td>
<td>0.047</td>
</tr>
</tbody>
</table>
A multi-disciplinary team-based, resource-efficient EMP is feasible and effective in the NICU of a developing country.

Benefits of EMP may have an extended impact on the socio-economic burden on patient and care givers.

However, efforts are required to increase the utilization of EMP in NICU.
DISCUSSIONS