The Importance of Occupational Therapy intervention

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Objectives

- Explain the role of OT as part of the ABCDE Bundle.
- Discuss most common risks seen with prolonged hospitalization.
- Evidenced based research supporting benefits of PT and OT interventions.
- Describe the interdisciplinary approach that could be implemented while working in the ICU setting.
Why should OT’s be involved?

- Look at impairments and deficits
  - Muscle weakness, progressive loss of musculoskeletal functions
- Impaired performance of ADL’s/IADL’s
  - ADL’s: Eating, grooming, bathing, dressing, toileting, toilet transfers, etc.
  - IADL’s: shopping, financial/Home/health management
- Inability to return to work, habits, routines
- Impaired/Poor cognition
- Decreased mental status due to Delirium
- Joint contractures from immobility
- Impaired sleep and rest
<table>
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<th>AREAS OF OCCUPATION</th>
<th>CLIENT FACTORS</th>
<th>PERFORMANCE SKILLS</th>
<th>PERFORMANCE PATTERNS</th>
<th>CONTEXT AND ENVIRONMENT</th>
<th>ACTIVITY DEMANDS</th>
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<tr>
<td>Activities of Daily Living (ADLs)</td>
<td>Values, Beliefs and Spirituality</td>
<td>Sensory and Perceptual skills</td>
<td>Habits</td>
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<td>Objects used and their properties</td>
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<td>Body Functions</td>
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<td>Instrumental Activities of Daily</td>
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<td>Motor and Praxis skills (coordinating,</td>
<td>Roles</td>
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<td>Social demands</td>
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<td>Living (IADLs)</td>
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<td>maintaining, anticipating)</td>
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<td>Sequencing and Timing</td>
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<td>Emotional regulation skills</td>
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<td>Required Actions</td>
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<td>Cognitive skills (judging, sequencing,</td>
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<td>Required Body Functions</td>
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<td>Communication and social skills</td>
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<td>REST AND SLEEP</td>
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<td>WORK</td>
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<td>SOCIAL PARTICIPATION</td>
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Common Risks of Prolonged Hospitalization:

A. Immobility and Prolonged Bed Rest
B. Sensory Deprivation and Stress
C. Delirium / Cognitive / Mental status
D. Prolonged Mechanical Ventilation
A. Immobility and Prolonged Bed Rest

- Decreases muscle strength
  - Healthy individual: can lose 1.3 - 3% /day spent on bed rest.
- Neuromuscular weakness occurs in 25-100% of ICU survivors due to:
  - Edema
  - Hyperglycemia
  - Hypoxemia
  - Drugs (corticosteroids)
  - Immobility

B. Sensory Deprivation and Stress

Disruption of Sleep & Rest = Physiological & Psychological Effects

- Disrupts the foundation of optimal occupational performance
- May decrease participation & engagement in daily life activities.
- Close interdisciplinary teamwork provides the patient with a daily schedule that can balance rest, mobilization and functional recovery directly and effectively.
B. Sensory Deprivation and stress Cont’d

- Stress from lines/tubes/monitors
- Lack of privacy leads to fear of pain or dislodging a line, so
  - Pt withdraws from daily living routines and this impairs their ADL performance.
B. Sensory deprivation and Sleep Cont’d

Social Isolation:

- Limited visiting hours lead to depression. Also often leading a patient to a state of generalized disorientation, disorganized thinking and even delirium.
- Work closely with other team members around visiting hours (especially in ICU) without compromising therapy interventions.
Sensory deprivation
Perceptual isolation
Immobility
Social isolation
Sleep disruption

Neurological disorganization

Depression
Apathy
Loss of motivation
Disorientation

Decreased ability to participate and get well

Assist to active wellness cycle

Increased personal organization, motivation, ability to cooperate

Reality orienting
Stress reduction
Introduction of ADL
Purposeful activity
Organized stimulation program

Occupational Therapy treatment
Delirium/Cognition (ABCDE Bundle)
Delirium- Acute change in mental status, with inattention and altered level of consciousness

Why should we care?
- Occurs in majority of ICU patients
- Is associated with:
  - Impairment in the person’s ability to perform basic daily functions: ADL’s and IADL’s.
  - Long term cognitive and mental health impairments
DE BUNDLE

- DELIRIUM/COGNITION
  - Criteria to participate in therapy
    - Does the patient open eyes to verbal stimulation \((+1 \geq \text{RASS} > -2)\)
    - Does the patient appropriately attends to tasks?
      - If yes, proceed with assessment
      - If no, Limit therapy to bed level.
C. Delirium/Cognitive/Mental Status


- 100% (55 of 55) exhibited cognitive and affective impairments, as well as problems with health status which affected their quality of life.
- At 1yr after ARDS, 17 of 55 (30%) pts, still exhibited generalized cognitive decline.
- 43 of 55 (78%) pts had all or at least one of the following:
  - Impaired memory, attention, concentration and/or decrease mental processing speed.
  - 1yr after ARDS, exhibited impaired health status which may be due to hypoxemia, emboli, inflammation, drug toxicity, and/or other etiologies.
C. Delirium. What can we do about it?

- Assess Delirium
  - Use standardized assessments to diagnose it on time - CAM ICU

- Work closely with other disciplines (RN, RT and pharmacy) to find intervention being taken to reduce delirium:
  - RT- E.g., daily interruption of sedation (SBT);
  - Pharmacologic intervention (dexmedetomidine as a replacement for benzodiazepine has been shown to reduce the duration of ICU-associated delirium)
  - Early Mobilization-Combined PT and OT in the earliest days can help reduce delirium (LANCET protocol).
Higher # (29 pts) return to independent functional status

Higher # of independent ADL’s (6) & greater unassisted walking distance at hospital discharge (33 ft).

Shorter duration of ICU associated delirium by 2 days & more ventilator-free days (23 days).

Managed by goal directed sedation guided by (RASS) and daily neurological assessments by the use of CAM-ICU

Same duration of PT & OT intervention during the time not receiving mechanical ventilation

19 pts returned to independent functional status.

(4) independent ADLs & 0 ft walking distance at hospital D/C.

No change in duration of associated delirium (4 days) & 21 days of ventilator free days.
Cognitive/Mental status

- Cross sectional analysis study from CHF Center at Barnes-Jewish Hospital in St. Louis, Missouri.
  - 64% possible depression
  - 15-59% have some level of cognitive impairment
  - 5% to 46% - Worse executive dysfunction and depressive symptoms were associated with reduced participation
- Conclusion:
  - Provided new insight into CHF relevant to OT.
  - Suggest that management of CHF should expand in focus from physical functioning and physically demanding activities to consider cognitive and psychological functioning in the context of all life situations instead of emphasizing solely on physical function and disability. *AJOT, June 2011, volume 65:3, p306-313*
So, how do we assess for cognitive deficits?

- Pt screening observation, family interview
- Standardized assessments:
  - CAM-ICU
  - Clock In the Box (CIB)

Used by Occupational Therapists
- Allen Cognitive level Screening tool (ACLS)
- Mini Mental Status Examination (MMSE)
- Montreal Cognitive Assessment (MOCA)
Clock In the Box (CIB)

✓ A sheet with 4 simple typed directions given to the pt.
✓ Gives a brief overview of cognitive function, including assessment of working memory and planning/organization.
✓ Duration: < 2 mins
✓ Minimum level of education is required.
✓ Maximum score on eight points criteria.
Allen Cognitive Level Screening tool (ACLS)

✓ Series of assessment tools used to determine initial estimate of cognitive function.
✓ Duration: 30 min ≤
✓ Can be administer to pts with vision deficits, hemiplegia &/or tremors.
✓ Middle range of the ACL questions about ability to function.
✓ Suggests needed interventions.
✓ Barrier / requires specific setting.
Mini Mental Status Examination (MMSE)

- Widely used, well validated
- Includes: orientation to time, place, immediate recall, short term, verbal memory, calculation, language, & construct ability
- Duration: 7-10 mins
- Maximum score 30/30
- Consider pt’s current level of consciousness.

### The Mini-Mental State Exam

<table>
<thead>
<tr>
<th>Description</th>
<th>Score</th>
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<tbody>
<tr>
<td>Orientation (1) What is the (year) (season) (date) (day) (month)?</td>
<td>5</td>
</tr>
<tr>
<td>Orientation (2) Where are we (state) (country) (town) (hospital) (floor)?</td>
<td>5</td>
</tr>
<tr>
<td>Registration (1) Name 3 objects I see and say each. Then ask the patient all 3 after you have said them. Give 1 point for each correct answer. Then repeat them until patient learns all 3. Count trials and record. Tally _______</td>
<td>3</td>
</tr>
<tr>
<td>Attention and Calculation (1) Serial 7s. 1 point for each correct answer. Stop after 5 answers. Alternatively spell “world” backward.</td>
<td>5</td>
</tr>
<tr>
<td>Recall (1) Ask for the 3 objects repeated above. Give 1 point for each correct answer.</td>
<td>3</td>
</tr>
<tr>
<td>Language (1) Name a pencil and watch.</td>
<td>2</td>
</tr>
<tr>
<td>Language (2) Repeat the following “No ifs, ands, or buts!”</td>
<td>1</td>
</tr>
<tr>
<td>Language (3) Follow a 5-stage command: “Take a paper in your hand, fold it in half, and put it on the floor.”</td>
<td>3</td>
</tr>
<tr>
<td>Language (4) Read and obey the following: CLOSE YOUR EYES.</td>
<td>1</td>
</tr>
<tr>
<td>Language (5) Write a sentence.</td>
<td>1</td>
</tr>
<tr>
<td>Language (6) Copy the design shown.</td>
<td>1</td>
</tr>
</tbody>
</table>

**Total Score:**

Assess level of consciousness along a continuum

- Alert
- orientable
- Supine
- Comatose

Montreal Cognitive Assessment (MOCA)

- Rapid screening instrument for MILD cognitive dysfunction.
- Domains: Attention, construction, executive memory, visual perceptual skills, calculations and orientation.
- Duration: 10 mins.
- Passing score of 26/30
- Available in multiple languages.
- Different versions.
D. Prolonged Mechanical ventilation

The Role of OT

1. To help pts become independent in managing their stress response during weaning (SBT) though the use of purposeful activity.
   - OT – Early mobility:
     - Basic performance of light ADL’s, e.g. Oral care
     - Positioning
     - Activity tolerance and progression

2. Role of Interdisciplinary Team
OT Early Exercise and Mobility (ABCDE Bundle)
Is your patient ready to MOVE?

**MOVE** criteria

- **M** Myocardial stability, with no ischemia in last 24hrs
- **O** Oxygenation
  - FiO2 ≤ 60%
  - PEEP ≤ 10 cmH2O
- **V** Vasopressors no titrated in past 2hrs
- **E** Engages to voice (RASS of -2<)
OT INTERVENTION ON EARLY MOBILITY

EXERCISE GOALS:

- Improve functional capacity towards full resumption of ADL, counseling on lifestyle changes (ECT).
- PROM- used to promote joint mobilization prior AROM
- A/AROM- Low intensity: 2-3 METS (Metabolic Equivalents) progressing to 3-5 METS by discharge.
- HR increase of 10-20 bpm above rest depending on medications.
- Post surgical Pts: UE ROM following restrictions.
- Monitor abnormal response in HR
  - Tachycardic (If HR ↑10 bpm per 1.2 MET activity)
  - Chronotopic incompetence- bedside ADL’s, HR should not go higher than 20 bpm and if it does is a tachycardia response)

OT INTERVENTION ON EARLY MOBILITY

- Positioning:
- Splinting
- Adaptive equipment
- Family education/involvement
- Basic ADL’s
  - *Oral care: Twice a day Oral Care with Clorahexadine CHG proven to decrease VAP*
- Bathing
- Toiletting
- Toilet transfer
OT Barriers

- OT services are underutilized in many acute care settings.


  Dinglas’s prospective cohort study:
  - 514 patients with Acute Lung Injury from 11 ICUs in three hospitals in Baltimore, MD. (hospitals settings: trauma, surgical and medical)
  - Only 30% received OT during their ICU stay.
  - OT initiated 1.5 days after the start of MV, significant improved physical function at hospital d/c.
  - Those who never received OT had:
    - ↑ severity of Illness at ICU admission, with a median APACHE II score 28 (Acute Physiology and Chronic Evaluation II).
    - Worse SOFA scores
    - ↑ utilization of continuous hemodialysis,
    - ↑ mean oxygen requirements and
    - ↑ days with coma.
OT BARRIERS

BARRIERS/MYTHS

- OT services are underutilized in most ICU settings.
- Lack of performance of ADL’s by pts in ICU.
- Lack of competence/knowledge on lines/equipment being used by pts in ICU.
- Pt is too sick for therapy/early mobilization.
- Doctors don’t understand the importance of OT role.

SOLUTIONS

- Attend interdisciplinary rounds, committees.
- Start simple. Tie your skills to BADL’s. i.e. ↑ROM for oral care & work the way up.
- Education with other disciplines on equipment used and things to watch for.
- Help change the ICU culture through evidenced based research for adoption of early mobilization programs in the ICU.
- Learn to speak your colleague language (lab values, FIO2, etc.)
CONCLUSION

- Barriers: Training & Education
- Change culture
- Interdisciplinary Collaboration
- Communication
- DO SOMETHING!