

# Mobilizing in the ICU

Tim Coleman PT, DPT, NCS  
Megan Lusby PT, DPT, CCS

**UAB MEDICINE**

1

---

---

---

---

---

---

---

---

### About us!

- University of Alabama BS Biology
- Alabama State University DPT
- James A Haley Veteran's Hospital
  - Neurology Residency
  - Mixed settings and specialty clinics
- UAB Acute Care Hospital
  - Staff Therapist
  - Predominantly Neurology ICU and Stroke Intermediate
  - Acute Care Mentor for UAB Neurology Residency

2 UAB Acute Care Therapy

**UAB MEDICINE**

2

---

---

---

---

---

---

---

---

### About us!

- University of Kentucky BS Psychology
- University of Kentucky DPT
- Duke University Hospital
  - Cardiovascular and Pulmonary Residency
  - Experience in both inpatient and outpatient setting
  - Lung transplant
- UAB Acute Care Hospital
  - Staff Therapist
  - Predominantly Cardiothoracic ICU/ECMO/Transplant

3 UAB Acute Care Therapy

**UAB MEDICINE**

3

---

---

---

---

---

---

---

---

### UAB Acute Care Therapy

- Department Manager
- Teams
  - Physical, Occupational, Speech, and Music Therapy
  - Service Line driven
    - Hospitalist
    - Trauma
    - Neurology
    - Cardiopulmonary
    - Neonatal
    - Highlands
  - Each team has ICUs that Therapy covers

4 UAB Acute Care Therapy



4

---

---

---

---

---

---

---

---

---

---

### UAB ICU's

- Neurology
- Cardiopulmonary
  - Cardiothoracic, Heart/Lung Transplant
  - Medical, Cardiology
- Trauma
- Surgical
- Oncology/BMT
- Neonatal

5 UAB Acute Care Therapy



5

---

---

---

---

---

---

---

---

---

---

### UAB ICU's and Specialized Care

- Each ICU requires individualized knowledge
  - Neurology
    - External Ventricular Drain/Lumbar Drains
    - Neuro status monitoring
  - Cardiac
    - ECMO, implanted devices
    - Invasive monitoring
  - Trauma
    - Complex orthopedics
    - Skin grafting and burn dressings
  - Medical – pulmonary and vent management
  - Surgical – Wound closure techniques
  - Oncology/BMT – Immunocompromised care

6 UAB Acute Care Therapy



6

---

---

---

---

---

---

---

---

---

---

### Why are we in the ICU's?

- Prevention of secondary complications
  - ICU Delirium
  - Disuse atrophy
  - Pressure injuries
- Early education and rehab process
  - Patient and family education
  - Therapy goals and expected progress
- Early recommendations for discharge
  - Assists interdisciplinary team
  - Expedites planning, decrease in LOS

7 UAB Acute Care Therapy



7

---

---

---

---

---

---

---

---

### What does it take to mobilize effectively?

- Teamwork and Communication
  - Bedside RN
    - Medication timing
    - Line management
    - Opportunity for education/training
  - Respiratory/Perfusionist
    - Vent management
    - Saturation goals
    - ECMO
  - Therapy colleagues
- Shared goals
  - Best care for patient
  - Safety

8 UAB Acute Care Therapy



8

---

---

---

---

---

---

---

---

### Whose appropriate to move?

- Morning chart review and rounding
  - Medical plans for the day
  - Update from bedside RN from previous day/night
- Contraindications
  - Surgery
  - Vitals
  - Labs
  - Devices
- Cognitive capacity and safety
  - More of a precaution
  - Ability to follow instructions

9 UAB Acute Care Therapy



9

---

---

---

---

---

---

---

---

**Equipment**

- Ventilators
  - Routes
    - Endotracheal Tube
    - Tracheostomy
  - Modes
    - Assist-Control
    - SIMV – Synchronized Intermittent Mandatory Ventilation
    - Bi-Level
    - Pressure Support
  - Settings
    - Rate and volume
    - PEEP
    - Pressure Support
    - FIO2

10 UAB Acute Care Therapy



10

---

---

---

---

---

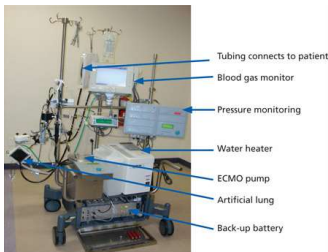
---

---

---

**Equipment**

- Extracorporeal Membrane Oxygenation
- Partial cardiopulmonary bypass used for long-term support of respiratory and/or cardiac function
- Veno-venous (VV, pulmonary support) and Veno-arterial (VA, pulmonary and cardiac support)
- Internal Jugular or Femoral vein access



11 UAB Acute Care Therapy



11

---

---

---

---

---

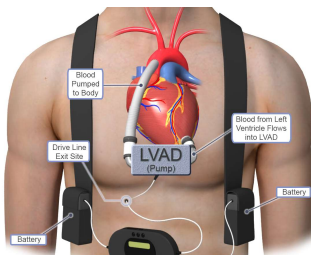
---

---

---

**Equipment**

- Left ventricular assist device
- Pump and connections are implanted during open-heart surgery
- Computer controller, a power pack, and a reserve power pack remain outside the body
- Use of a pulse oximeter may not be reliable; therefore, RPE may be warranted



12 UAB Acute Care Therapy



12

---

---

---

---

---

---

---

---

**Equipment**

- External Ventricular Drain (EVD)
- Relieve elevated intracranial pressure, drain CSF, bloody CSF or blood after surgery or hemorrhage, and monitor the flow rate of CSF
- Must be closed system to mobilize
- RN present to assist

13 UAB Acute Care Therapy **UAB MEDICINE**

13

---

---

---

---

---

---

---

---

---

---

**Equipment**

- Continuous Renal Replacement Therapy
- Acute kidney injury
- Patients that would not tolerate traditional dialysis
- Femoral or Jugular access

14 UAB Acute Care Therapy **UAB MEDICINE**

14

---

---

---

---

---

---

---

---

---

---

**Common Lines**

- Swan Ganz
  - Inserted in Internal Jugular or Subclavian vein
  - > Superior Vena Cava > rests in Pulmonary Artery
- Intra-Aortic Balloon Pump
  - two parts: a balloon inserted into the aorta and a machine outside the body
  - Femoral artery insertion
- Arterial line
  - Radial or Femoral artery, usually
  - Position dependent, real-time blood pressure readings
- Central Venous Line
  - Subclavian, Internal jugular, or femoral vein access
  - Monitors R Atrial function

15 UAB Acute Care Therapy **UAB MEDICINE**

15

---

---

---

---

---

---

---

---

---

---

### Evaluating in the ICUs

- Basic functional mobility assessment
- Outcome measures
  - ICU Mobility Scale
  - PASS - Stroke
  - FSS-ICU
  - PFIT-s
  - 5x sit to stand
  - 6MWT
  - RASS

16 UAB Acute Care Therapy



16

---

---

---

---

---

---

---

---

---

---

### Patient Case

Mr. A is a 54 y/o M with a PMH of chronic systolic and diastolic HF, pulmonary HTN, tobacco abuse who presented to OSH fall 2019 with c/o SOB, orthopnea, and diaphoresis; LHC revealed MvCAD and MR. He was worked up in UAB clinic and is now s/p CABGx4, MVR (tissue), and IABP placement (1/14). His course has been complicated by refractory hypotension and lactic acidosis requiring Impella, then transitioned to VA ECMO on (1/16), AKI requiring CRRT, LLE Ischemia requiring through the knee amputation with vascular surgery, HIT+ requiring bival. Now s/p formalization of left leg amputation (2/7). ECMO decannulation 2/10.

17 UAB Acute Care Therapy



17

---

---

---

---

---

---

---

---

---

---

### Patient Case

Ms. S is a 33 y/o F with PMH of CTD-ILD (3-4L NC), Sjogren's, Pulmonary HTN, Cor Pulmonale with Atrial septal defect (right to left shunt). Admitted on 7/27 for progressive weight loss, with 20lb weight loss since December, and increasing oxygen support. Pt placed on VA ECMO (8/30/19) for optimization for transplant. Course c/b GIB (9/27) requiring gastric artery coiling, suspected stroke, and LE weakness/neuropathy (Neuro and Rheum consulted for BLE weakness, received IVIG, now improved). S/p Bilateral lung and heart transplant and ECMO decannulation (11/18). Sternal closure (11/19). Left cord laryngoplasty on (11/23). Thoracics consulted (11/29) and esophagram revealed large esophageal leak at the level of the left mainstem bronchus that communicates with the left pleural space. S/p esophageal stent placement (11/29) with Thoracics. S/P EGD and esophageal stent removal (1/22).

18 UAB Acute Care Therapy



18

---

---

---

---

---

---

---

---

---

---

**Patient Case**

- 78 yo WM presenting to UAB 2/8/20 from Baptist East Hospital, level 2 trauma sustaining spinal injuries after falling off the back of a truck
- Arrived hypothermic to the low 90s, found to have T1-T3 hematoma with decreased sensation to the BLE.
- Initial CT imaging reportedly showed no sign of traumatic injury however patient's neurologic exam was concerning for central cord syndrome
- MRI with SCI C5-7, ligamentous injury C5-7, epidural hematoma C1 – T4
- 2/9/20 PSIF C1-T5 with laminectomy C1-T4, evacuation of epidural hematoma. MAP management x 3 days post-op
- Extubated 2/10/20, PT/OT evals 2/11/20

19 UAB Acute Care Therapy



19

---

---

---

---

---

---

---

---

---

---

**Patient Case**

- 2/1/20: 71yo RH AA man with HTN and treated Hep C was transferred from OSH for thrombectomy consideration after receiving tPA for R MCA syndrome.
- Patient was in the ER yesterday (1/31/20) for left shoulder pain after playing golf, reported some hand grip weakness but exam was otherwise non focal. Reportedly woke up normal this morning and at 10:30am developed left hemiplegia and right gaze deviation.
- Images from OSH: CT did not show any evidence of hemorrhage or large infarct and tPA given.
- MRI: large right MCA infarction with significant mass effect resulting in moderate right to left midline shift and early right uncus herniation. Stable hemorrhagic conversion. Moderate focal stenosis within the proximal right ICA secondary to atherosclerotic plaque. Minimal or no flow within the proximal cervical vertebral arteries.
- 2/1/20: Attempted IAT for R MCA occlusion --> TIC1 0 – unsuccessful
- 2/2/20: Right decompressive hemicraniectomy
- 2/6/20: PT/OT Evals
- 2/12/20: Trach/PEG

20 UAB Acute Care Therapy



20

---

---

---

---

---

---

---

---

---

---