Safety of Out of Bed Activity and Ambulation in Patients with Pulmonary Artery Catheters

A. Pawlik, PT; C. Esbrook, OTR/L; S. Harrison, PT; C. Steinberg, OTR/L; V. Leevarandam, MD
University of Chicago Medicine, Chicago, IL, United States

Background

In the setting of increased Physical Therapy (PT) and Occupational Therapy (OT) involvement in the ICU, there is a need for investigation of safe mobilization practices in the presence of medical devices. Patients with pulmonary artery catheters (PAC) often remain on bed rest due to concerns regarding catheter-related adverse events, although there is limited data describing the mobilization of patients with PACs. Patients may be subjected to unnecessary risk associated with bed rest due to the presence of a PAC. The purpose of this study is to examine the incidence of pulmonary artery catheter-related events during PT and OT sessions in a cardiothoracic surgery intensive care unit (ICU). Additionally, patients who remain on bedrest while hospitalized have a greater need for long-term care and rehabilitation than those who undergo early PT and OT.

Aims

Due to the absence of literature supporting or refuting the practice of mobilizing patients with PACs, our aim was to gather data to support the hypothesis that mobilizing patients who have a PAC is safe.

Lessons Learned

- Analysis of the preliminary data supports our current practice of mobilizing patients with a PAC.
- There is a need for literature to support PT and OT practices for consistency across institutions and to ensure patient safety.

Next Steps

- Continue data collection for larger sample size (goal=150 charts)
- Complete statistical analysis to screen for trends, associations
- Submit and publish manuscript to disseminate information

The Intervention

Presence of PAC is not a contraindication to out of bed activity at UCM. This allows for retrospective analysis via chart review to investigate whether adverse events occurred in patients who were mobilized while PAC was in place or within 24 hours after the PAC was removed.

Data Collection

1) Administer survey to bedside nurses in cardiothoracic surgery ICU regarding location in medical record of information regarding adverse events

2) Review charts for evidence of the following adverse events while PAC was in place or within 24 hours after PAC was removed:
   - Catheter dislodgement
   - Bleeding at PAC insertion site
   - New onset arrhythmia
   - Change in heart rhythm
   - Pulmonary hemorrhage

Retrospective Study: 48 patient charts currently reviewed.

Inclusion Criteria

- Adults over age 18, admitted to the cardiac surgery or medical ICU between January 1, 2010 and December 7, 2013.
- Active referral to therapy services present in medical record at the time they were admitted.
- Subjects must have participated in mobility activities with physical or occupational therapy including sitting at the edge of the bed, standing, walking or other activities of daily living.

Exclusion Criteria

- Subjects unable or inappropriate to participate with out of bed activity while the PAC was in place for other medical reasons unrelated to the PAC.
- PACs placed in the femoral artery

Results

- Total PT/OT sessions with PAC in place=94 sessions
- Avg. duration of PAC in place=3.6 days
- Avg. # of PT/OT sessions per patient with PAC in place=2 sessions

Discharge disposition (n=48)

- Home = 36 (75%)
- Acute Rehab = 8 (17%)
- SNF = 1 (2%)
- Deceased = 3 (6%)