Pulmonary Artery Catheter Epidemiology and Risk

Zachary Yetmar, M.D.1, Brian Lah2, John O’Horo, M.D., M.P.H.3, Atta Behfar, M.D.4, Priya Sampathkumar, M.D.5, Elena Beam, M.D.3
1Department of Internal Medicine, 2Department of Biomedical Statistics and Informatics, 3Division of Infectious Diseases, 4Division of Cardiovascular Diseases
Mayo Clinic, Rochester, MN

Abstract

Background: Central line associated bloodstream infections (CLABSI) are a known complication of central venous access. Pulmonary artery catheters (PAC) are frequently used in status 1A heart transplant patients, at the top of the heart transplant waiting list. These patients often have a PAC in place for extended periods of time and are thus at risk for CLABSI. Our institution’s practice is to replace PAC exchange after 21 days of use. We sought to estimate the risk of CLABSI and determine whether factors influence infection rate.

Methods: We conducted a retrospective, descriptive study from January 2013 to December 2016 identifying characteristics of PAC use and infection rate in adult status 1A pre-heart transplant patients. Time to CLABSI was analyzed with Kaplan-Meier estimates. The effect of CLABSI on time to transplant and death were analyzed in time-dependent Cox models.

Results: We identified 61 status 1A pre-heart transplant patients with PACs during this time period with 219 PACs and 2566 line-days. Median duration of PAC was 11 days. There were 14 CLABSIs for an infection rate of 5.46/1000 line-days (95% CI: 2.96-9.15), compared to 1.06/1000 line-days for our institution’s intensive care unit.

Discussion

• The use of PAC in the pre-heart transplant population is associated with high rates of CLABSI.
• CLABSI had a trend to significance with duration of PAC and concomitant lines.
• These patients will keep lines in place for extended periods of time, putting them at risk for multiple line infections.
• Further studies could be performed to compare PAC to other line-related infections in this population.
• The use of PAC in the pre-heart transplant population should be restricted.

References