The Association Between Doppler Measures of Cardiac Function and Outcomes in Patients With Left Ventricular Ejection Fraction ≤ 40% Undergoing Noncardiovascular Surgeries

Yang Shi
Rachel Pedersen
Matthew Rappelt
Robyn Shearer
Nasir Z. Sulemanjee
Dianne L. Zwicke
T. Edward Hastings
Omar M. Cheema
Vinay Thohan

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Recommended Citation
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categorical and continuous variables, respectively. Binary

test, respectively. Kaplan-Meier method was used to calculate

Demographic and traditional risk factors, as well as

empiric coverage for patients should be performed.

FIRST PLACE ORAL PRESENTATION
See page 245 for citation.

SECOND PLACE ORAL PRESENTATION
Path to Resistance: Risk Factors Associated With
Carbapenem-Resistant Pseudomonas aeruginosa

Kushal Patel, Jessica J.F. Kram, Dennis J. Baumgardner

Department of Internal Medicine, Aurora Sinai Medical Center; Department of Family Medicine, Aurora UW Medical Group; Center for Urban Population Health

Background: An estimated 51,000 health care-associated
Pseudomonas aeruginosa infections occur in the United States
annually. More than 13% are secondary to non-carbapenem
multidrug-resistant strains, which result in 400 yearly deaths.

Traditional risk factors for resistance include ICU stay,
mechanical ventilation, previous hospitalization and major
comorbidities. As microbes evolve, risk factors also may
evolve.

Purpose: To determine if traditional and/or new risk factors for
P. aeruginosa resistance are valid and predictive of infection
with carbapenem-resistant P. aeruginosa.

Methods: We retrospectively studied inpatients and outpatients
≥ 18 years old who presented to an Aurora Health Care facility
with a positive P. aeruginosa culture during 2014. Cultures
were obtained from the ACL Laboratories database, and patient
medical records were reviewed in Epic. Chi-squared test with
Yates correction and two-sample t-tests were performed on
categorical and continuous variables, respectively. Binary
regression was used for multivariable modeling. Significance
was associated with P<0.05.

Results: Study population (N=1,763) characteristics were:
mean age 68.0, body mass index 30.4 kg/m², 51.2% female
sex, and 89.3% white race. Resistance to imipenem or
meropenem (14.0%) on univariable analysis was associated
with younger age (66.0 vs 68.3 years, P=0.027), hospitalized
patients (19.7% vs 8.6%, P<0.0001), male sex (16.0% vs
12.0%, P=0.017), nonwhite race (23.5% vs 12.3%, P<0.0001),
respiratory culture (30.9% vs 12.1%, P=0.0001), history of
pulmonary disease (19.4% vs 12.9%, P=0.005), history of
congestive heart failure (18.6% vs 13.0%, P=0.016), history
of multidrug resistance (33.3% vs 13.6%, P=0.003) and recent
surgery (17.8% vs 12.2%, P=0.002), as well as transfer from
institution, Foley catheter, vasopressor treatment, central/PIC
lines, mechanical ventilation, ICU admission, and bedridden
status (all P<0.0001). In multivariable modeling, nonwhite
race, respiratory culture, recent transfer, vasopressor use and
central/PIC lines were significant. Only 0.57% of strains were
resistant to the six traditional non-carbapenem drugs and both
carbapenems.

Conclusion: Demographic and traditional risk factors, as well as
respiratory cultures, were predictive of carbapenem resistance.

Sheikh Khalifa bin Hamad Al Thani Center for Integrative
Research on Cardiovascular Aging, Aurora Research
Institute; Transplant Administration, Aurora Health Care;
Aurora Cardiovascular Services, Aurora Health Care

Background: Preoperative risk assessments of individuals
who undergo major noncardiac surgery have focused on
ischemic heart disease. Information on how to assess the
noncardiac surgical risks for patients with depressed cardiac
function, as seen in heart failure, is sparse. Echocardiography is
routinely performed in patients with depressed cardiac function
and is an accepted standard cardiac assessment. Transthoracic
echocardiography (TTE) provides strong independent
prognostic implications in a wide range of cardiovascular
conditions.

Purpose: To identify the echocardiographic parameters
associated with outcomes among patients undergoing major
noncardiac surgery.

Methods: A retrospective single-institution investigation
identified 1,770 patients who underwent one or more major
noncardiac procedures from Jan. 1, 2011, to June 30, 2014, and
had at least one TTE performed within 90 days before surgery.
Patients were stratified by presurgery left ventricular ejection
fraction (LVEF) into LVEF ≤ 40% and LVEF > 40% groups. The
cohort was followed through June 12, 2015, with the outcome
focused on all-cause mortality. Continuous and categorical
variables were compared by Student’s t-test and chi-squared
test, respectively. Kaplan-Meier method was used to calculate
mortality estimates postsurgery. Cox proportional hazards model
was used for univariate and multivariable models.
Results: In patients with LVEF > 40%, the 1-, 6- and 12-month mortality rates were 3.8%, 9.0% and 12.1%, respectively. In patients with LVEF ≤ 40%, 1-, 6- and 12-month mortality was 9.5%, 18.4% and 25.2%, significantly greater than patients with LVEF > 40% at all time points (P<0.01). Univariate analysis of patients with LVEF ≤ 40% found the following echocardiographic parameters to be significant predictors of 6-month mortality: right atrial pressure, pulmonary artery systolic pressure, LVEF < 25%, mitral A-wave velocity, mitral E-wave deceleration time, and left ventricular posterior wall diastolic thickness. Multivariate analysis identified mitral A-point velocity (hazard ratio [HR]: 0.98, P=0.02), LVEF < 25% (HR: 3.48, P<0.01), glomerular filtration rate (HR: 0.71 at 10-unit increments, P<0.01) and colectomy (HR=5.47, P<0.01) as significant predictors of 6-month mortality.

Conclusion: Preoperative LVEF < 25%, lower mitral A velocity, colectomy, and lower glomerular filtration rate are associated with 6-month mortality postsurgery. Close preoperative cardiac assessment of patients with decreased LVEF prior to noncardiac surgery may prove beneficial in improving long-term outcomes.

SECOND PLACE POSTER (tie)
See page 245 for citation.

THIRD PLACE POSTER
See page 245 for citation.

SELECT ABSTRACTS
Association Between Pregnancy Intention and Maternal Characteristics, Outcomes, and Cost of Care: A Pilot Study
Kristy M. Kelel, Kiley B. Vander Wyst, Danielle M. Greer, Danish Siddiqui
Department of Obstetrics and Gynecology, Aurora Sinai Medical Center; Center for Urban Population Health; Department of Obstetrics and Gynecology, Aurora UW Medical Group

Background: An estimated 51% of pregnancies in the United States are unintended. In Wisconsin, unplanned pregnancies account for 40% of all pregnancies and cost $148 million in public funds. Unintended pregnancy, which creates increased hardship for mothers and threatened well-being of infants, has been recognized as an important health, social and economic problem.

Purpose: To determine the pregnancy intentions of postpartum women and the maternal characteristics, outcomes and costs of care associated with unintended pregnancies at a large urban hospital in Milwaukee, Wisconsin.

Methods: Postpartum women were surveyed prior to discharge. The 20-item survey included whether or not the woman had been trying to get pregnant and how she felt about the timing of her pregnancy. Electronic medical records were reviewed to determine maternal and neonatal outcomes, including antenatal, perinatal, postpartum comorbidities and complications. To determine the most important factors influencing the binary and multicategory responses of pregnancy intention, logistic and multinomial regression models were developed using stepwise variable selection procedures.

Results: A total of 338 women were asked to participate, resulting in 243 completed surveys (95 exclusions: 8 declines, 29 language barriers, 46 lost to follow-up, 12 other). Overall, 63% (142/227) of pregnancies occurred when “not trying.” Logistic and multinomial regression revealed anemia (P=0.004–0.007), anxiety (P=0.048) and income level (P=0.002–0.045) as the most significant predictors of unintended pregnancy. The odds of unintended pregnancy for women at the lowest two income levels were 12.05 (odds ratio: 2.82–51.39) and 3.83 (odds ratio: 1.314–11.142) times greater than those for women at the highest income level. Significant univariate associations existed between unintended pregnancy and age (P<0.001), race (P=0.025) and insurance (P=0.003).

Conclusion: The unintended pregnancy rate of our study population was greater than state and national levels. Maternal characteristics of income, anemia and anxiety were the most significant predictors of pregnancy intention, but unintended pregnancy also was highly associated with younger age, African-American race and Medicaid insurance. Unintended pregnancy effects included: fewer prenatal care visits, increased prevalence of intrauterine growth restriction and decreased likelihood of breastfeeding. While the relative use of contraception was significantly greater, the absolute use among women who had an unintended pregnancy is of great clinical concern.

Models for Predicting Incident Delirium in Hospitalized Older Adults: A Systematic Review
Sundeep Kalimisetty, Wajih Askar, Brenda Fay, Ariba Khan
Department of Geriatrics, Aurora Sinai Medical Center; Aurora Libraries, Aurora Health Care; Department of Geriatrics, Aurora UW Medical Group

Background: Delirium is common in hospitalized older adults, and 40% of cases may be preventable. Hospital Elder Life Program is an evidence-based program to reduce incidence of delirium. It has been successfully implemented in one hospital and will be implemented in four other hospitals. Identification of patients at highest risk of developing delirium using the electronic health record (EHR) may be an effective targeted strategy to reduce the incidence of delirium.

Purpose: To systematically review and summarize the medical literature regarding risk prediction models for delirium in older inpatients.

Methods: A medical librarian customized and conducted the search strategy for all published medical articles on delirium prediction models. Electronic databases sourced included Ovid MEDLINE, CINAHL, Cochrane Database of Systematic Reviews, EMBASE and PsycINFO. Controlled vocabulary terms specific to database as well as relevant keywords were