Predictors of Mortality in Patients With Transient Severe Left Ventricular Systolic Dysfunction

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**RIESELBACH DISTINGUISHED SESSION I**

**Benefit of Report Card Feedback After Point-of-Care Assessment of Communication Quality Indicators**


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**Background:** Communication in health care is crucial for patient experience and biomedical outcomes, but problems with communication are often seen in health care. Training can improve communication, but skills must be reinforced after graduation to remain improved. Since educational methods are too resource intensive for sustained use throughout the Aurora Health Care system, it is necessary to develop affordable, quantitative methods. The first author has developed necessary techniques, including behavior-specific measures called communication quality indicators.

**Purpose:** To demonstrate secure audio recording in an outpatient visit and to use communication quality indicators with a heterogenous set of patient-clinician conversations.

**Methods:** Thirty primary care physicians were audio-recorded with one or more patients via a secure Internet application running on exam-room computers. Transcripts were abstracted quantitatively using explicit-criteria definitions for two groups of communication quality indicators: assessments of understanding (AU) and jargon explanations (JE). There are four separate behaviors within the AU group: open-ended, close-ended, the highly effective “request for teachback,” and the least effective “OK?” question. Quality indicator data were returned using a previously described report card. After feedback, one or more follow-up recordings were done for comparison.

**Results:** Baseline transcripts included a mean of 15.5 unique jargon words, but words were often used more than once so the mean total jargon count was 25.1. JEs were rare at baseline, with a median of 1 per transcript. The JE ratio (fraction of jargon words that follow a JE for that word) averaged 0.26 out of a best-possible 1.0. AUs were found in 61.1% of transcripts, but most were “OK?” (median 2.13/transcript) or close-ended questions (median 0.52/transcript). After the report card, the median number of JEs improved to 4 per transcript (P<0.01 by Wilcoxon), and the JE ratio improved to 0.36 (P<0.01 by matched t-test). AUs improved to 81.3% of transcripts (P<0.04 by chi-squared). Most of the increase was found in close-ended AUs (median 0.97/transcript by, P<0.04 by Wilcoxon).

**Conclusion:** This project demonstrated that it is feasible to record at the point of care, abstract transcripts at a central office and improve communication quality via a report card. The small sample size was acceptable for a demonstration project, but a larger, multifaceted program could improve patient experience and biomedical outcomes across Aurora.

**RIESELBACH DISTINGUISHED SESSION II**

**Predictors of Mortality in Patients With Transient Severe Left Ventricular Systolic Dysfunction**

Kanwar Y. Singh, Firas Zahwe, Bilal Omery, Crystal Platz, Wassim Ballany, Robyn Shearer, Tadele Mengesha, M. Eyman Mortada, Jasbir Sra, Indrajit Choudhuri

*Aurora Cardiovascular Services, Aurora Health Care; Aurora Research Institute*

**Background:** About 20% of patients who develop left ventricular (LV) systolic dysfunction will have improvement in ejection fraction (LVEF) over time. This patient cohort is generally excluded from large sudden death trials and, hence, understudied.

**Purpose:** To evaluate the predictors of mortality in patients with severe LV systolic dysfunction who have improvement in LVEF during follow-up.

**Methods:** Patients who had transient LV systolic dysfunction from 2010 to 2014 within the Aurora Health Care system and who had LVEF improve to ≥ 40%, irrespective of implantable cardioverter-defibrillator (ICD) implant, were studied. Predictors of mortality were identified using Cox proportional hazards model. Patients were then divided into groups based on LVEF > 50% or < 50% to assess for benefit of ICD using Kaplan-Meier estimates.

**Results:** A total of 1,364 patients met inclusion criteria; 58.4% were male, and mean BMI was 29 ± 7. Mean age post-LVEF improvement was 66 ± 14 years, and with each added year the hazard rate increased by 5% (hazard ratio [HR]: 1.05, P<0.0001). Several clinical characteristics emerged as predictors of mortality, including smoking (HR: 1.8, P=0.0002), chronic renal disease (HR: 2.3, P<0.0001), atrial fibrillation (HR: 1.4, P=0.013) and no-ICD (HR: 2.1, P=0.012). With each percentage increase in LVEF, hazard rate decreased by 2% (HR: 0.97, P=0.007). However, presence of ICD did not significantly improve mortality in the group with LVEF > 50%

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mean age 68.0, body mass index 30.4 kg/m², 51.2% female.

Results: was associated with P<0.05.

regression was used for multivariable modeling. Significance

Yates correction and two-sample t-tests were performed on

were obtained from the ACL Laboratories database, and patient

P. aeruginosa

culture during 2014. Cultures

with a positive

≥ 18 years old who presented to an Aurora Health Care facility

Methods:

with carbapenem-resistant

P. aeruginosa.

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.

Such information may guide initial antibiotic treatment of P.
aeruginosa. Fortunately, less than 1% of strains were resistant
to all drugs tested. Further studies looking at change in outcome

while incorporating these risk factors in determination of

empirc coverage for patients should be performed.

FIRST PLACE POSTER

See page 245 for citation.

SECOND PLACE POSTER (tie)

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

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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.