FIT RESEARCH

Indiana-ACC Poster Competition Abstract

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Please structure your case study abstract using the following headings: * Introduction/objective * Case presentation * Discussion * Conclusion

Title:

Inflammatory Bowel Disease Increases Risk of Mortality
and Hospitalization in Patients with Heart Failure

Abstract: (Your abstract must use Normal style and must fit into the box. You may not alter the size of this)

INTRODUCTION

The purpose of this study is to assess the impact of inflammatory bowel disease (IBD) on patients with heart failure (HF) in terms of prevalence, mortality, heart transplantation/ventricular assist device (VAD) implantation, and hospitalizations.

METHODS

The data in this study was extracted from the Indiana Network for Patient Care (INPC) database, which was created in 1994 as a state-wide initiative for healthcare information exchange and research, and maintained by the Regenstrief Institute. The INPC currently includes data from over 100 hospitals in Indiana. Data was retrospectively collected utilizing electronic database algorithms and includes patients age 18 years or older from 2002-2011. The index dates were defined by the first IBD diagnosis code. We identified 12,073 patients with IBD who were age-matched with 12,073 control cases. The specific ICD-9 codes were utilized to identify and define diagnoses, such as HF, Crohn Disease, and Ulcerative Colitis. The patient data including mortality data, hospitalization, etc. were collected for two years prior to and following the index date.

RESULTS

The prevalence of HF in the IBD group was 4.08% compared to 6.64% in the control group (RR 0.61, 95% CI 0.55-0.68, $p<0.001$). The overall mortality difference was not significant i.e., 6.58% in the IBD group and 6.51% in the control group (RR 1.01, 95% CI 0.92-1.11, $p=0.815$). The mortality was significantly higher in patients with HF and IBD i.e., 29.20% compared to 23.32% for patients in the HF control group (RR 1.25, 95% CI 1.04-1.51, $p=0.018$). There was no difference in the rate of heart transplantation and VAD implantation between the two groups. Before the index date (date of first IBD diagnosis), the number of individual patients requiring hospitalizations was significantly higher i.e., 64.10% (316/493) in the IBD/HF group compared to 35.00% (281/803) in the HF control group (RR 1.83, 95% CI 1.63-2.06, $p<0.001$). After the index date, the number of individual patients requiring hospitalization was markedly higher i.e., 82.76% (408/493) in the IBD/HF group compared to 35.74% (287/803) in the HF control group (RR 2.32, 95% CI 2.09-2.56, $p<0.001$). In the HF control group there was no significant change in the number of individual patients hospitalized after the index date (RR 1.02, 95% CI 0.89-1.17, $p=0.754$). In the IBD/HF group, there was a significant increase in the number of individual patients requiring hospitalization after the index date (RR 1.29, 95% CI 1.19-1.40, $p<0.001$).

CONCLUSIONS

Patients HF and IBD are at increased risk of mortality and hospitalization compared to patients with HF alone. The prevalence of HF is lower in patients with IBD compared to the general population.

Indiana-ACC Poster Competition Abstract

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Please structure your case study abstract using the following headings: * Introduction/objective * Case presentation * Discussion * Conclusion

Title:

Assessment of Right Ventricular Strain in Cardiac Amyloid Compared to Normal Controls, Performed in Multiple 2-Dimensional Views

Abstract: (Your abstract must use Normal style and must fit into the box. You may not alter the size of this)

Background: Assessment of longitudinal left ventricular (LV) strain by speckle tracking has been shown to have diagnostic and prognostic value in patients with cardiac amyloid. There is limited information on assessment of right ventricular (RV) strain in this population. We have developed a technique of assessing RV strain in multiple views which allows for assessment of both longitudinal and circumferential fiber function.

Objective: The purpose of this study is to evaluate relative effects of amyloidosis and on longitudinal versus circumferential fiber function in the right ventricle.

Methods: Twelve patients with clinical or biopsy-proven cardiac amyloid and 32 controls with normal ejection fraction, no history of coronary disease, pulmonary hypertension or significant valve disease were included. General Electric Vivid 9 and Vivid Q ultrasound machines were used to acquire images (45 to 70 fps) in 3 views of the RV, the apical 4 chamber (4C), medially angulated long axis (LAX) and basal short axis (SAX) at the aortic valve level. RV strain was processed on the echocardiographs using software that partially automates selection of regions of interest. Average values for RV strain in each of the views were derived (4C with 6 segments, LAX with 6 segments, SAX with 4 segments) and global strain was calculated as the weighted average (16 segments). P values were calculated using the unpaired t-test.

Results: RV strain measured in the LAX and 4C views in patients with cardiac amyloid (LAX -14.9 ± 7.6; 4C -13.3 ± 4.4) were significantly lower than the control group (LAX -25.8 ± 4.5; 4C -22.4 ± 3.5) with p-values of <0.001 for both views. Global strain was also similarly reduced in the cardiac amyloid group (-13.4 ± 5.5) as compared to the control group (-22.2 ± 3.2) with a p-value of <0.001. In the SAX view however, RV strain in the cardiac amyloid group (-11.4 ± 5.5) was slightly but not significantly reduced compared to the control group (-15.9 ± 6.1, p = 0.04).

Conclusion: Amyloidosis results in a significant reduction in longitudinal fiber function of the right ventricle as evaluated by strain measurement. The modest reduction in RV strain in the SAX view suggests that amyloidosis preferentially affects longitudinal fiber function while circumferential fiber function is relatively preserved.

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FIT CASES

Indiana-ACC Poster Competition Abstract

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Title:

A Case of Fulminant Liver Failure Caused by Catheter Induced Rupture of a Sinus of Valsalva Aneurysm During Coronary Angiography

Abstract: (Your abstract must use Normal style and must fit into the box. You may not alter the size of this)

Background

Sinus of Valsalva aneurysms (SOVAs) occur in approximately 0.09% of the general population and they may be either congenital or acquired.[1] Men are affected more than woman by a ratio of 4:1. The right coronary sinus is most frequently affected, followed by the noncoronary sinus, and then the left coronary sinus.[2] Typically SOVAs are asymptomatic and found incidentally on routine imaging, however if they rupture and are left untreated there is a significant increase in mortality with only a 1-year life expectancy.[3]

Case Presentation

We describe a 55 year old Indian male physician who was transferred to our facility for urgent liver transplant evaluation. Cardiology was consulted for preoperative risk stratification. Two months prior to this hospitalization, the patient underwent coronary angiography for chest discomfort. The catheterization was performed via the radial artery and was notable for an extremely difficult to engage right coronary artery and nonobstructive coronary artery disease with no interventions. In the following two months, he developed progressive nausea, vomiting, abdominal distension, and shortness of breath that prompted him to visit the emergency department. Initial laboratory analysis revealed significantly abnormal liver function tests, electrolytes, and renal function.

As part of routine preoperative testing, the patient underwent transthoracic echocardiography that was suspicious for SOVA with rupture. Transesophageal echocardiography was then performed which confirmed a right coronary sinus SOVA with rupture and aortic to right ventricular fistula. Secondary workup for liver failure was nonrevealing and he had no history of alcohol consumption.

Cardiovascular surgery was consulted for emergent surgery and the patient received aortic root reconstruction with resection of the ruptured SOVA, supracristal VSD closure, and one vessel coronary artery bypass with significant improvement in hemodynamics in the immediate postoperative time period. After surgery, the patient recovered his renal function, hypotension resolved, and hepatic transaminases significantly improved.

Discussion

We propose that this SOVA rupture occurred as a result of catheter-induced trauma from a difficult to engage right coronary artery during the left heart catheterization that had occurred two months prior to his current presentation. This is a rare complication of left heart catheterization and a unique presentation of SOVA rupture.

SOVAs are commonly associated with aortic regurgitation (44%) and ventricular septal defects (31%),[4] both of which were seen in our patient. The right coronary sinus is the most common location for SOVAs and if rupture occurs in this location aortic fistula formation will typically extend into the right ventricle, as was seen in our patient. The next most common location for SOVAs is the noncoronary sinus, with an aortic fistula extending to the right atrium if rupture occurs.[5] Ruptured SOVAs typically require surgical repair, often with concomitant aortic valve repair or replacement depending on the degree of aortic regurgitation after the SOVA is repaired.[6] For SOVAs that have not ruptured, transcatheter closure techniques using a septal or ductal occluder device are also available and becoming more widely used.[7]

Conclusions

SOVAs are rare cardiac anomalies that may be congenital or acquired. SOVAs are often asymptomatic, however if rupture occurs, patients may develop symptoms acutely. Early recognition and repair of ruptured SOVAs is critical given their extremely poor short-term prognosis. Catheter induced trauma during left heart catheterization is a rare but important etiology for SOVA rupture and should be considered in the appropriate clinical context.

Indiana-ACC Poster Competition Abstract

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Title:

Cardiac Tamponade Secondary to Methicillin-resistant Staphylococcus Aureus

Abstract: (Your abstract must use Normal style and must fit into the box. You may not alter the size of this)

Introduction:
Purulent pericarditis carries a high mortality rate and requires early suspicion with rapid identification. Here, we present a rare case of cardiac tamponade secondary to methicillin-resistant Staphylococcus aureus (MRSA).

Case Presentation:
A 32 year old female presented with fevers and malaise. Her past medical history includes uncontrolled type 2 diabetes resulting in end-stage renal disease requiring intermittent hemodialysis via dialysis catheter; charcot foot with external fixator; and recurrent episodes of MRSA bacteremia. She was previously admitted for a malfunctioning subclavian dialysis catheter, which was removed and replaced with an internal jugular catheter. Immediately after discharge, the patient was found to have a temperature of 103, and readmitted. She was also tachycardic, hypotensive requiring vasopressor therapy, purulent drainage from her dialysis catheter was noted, and distant heart sounds. Treatment for catheter associated blood stream infection was initiated. However, an initial chest X-ray revealed a water bottle cardiac silhouette, which was enlarged from previous x-rays. Resultant echocardiogram did reveal a large pericardial effusion with right atrial collapse and significant mitral inflow variations suggestive of hemodynamic compromise. She was emergently taken to the cath lab for pericardiocentesis where 620 mL of purulent fluid was drained. Immediately after the procedure, the patient had rapid resolution of her shock. Ultimately, both blood cultures and pericardial fluid grew MRSA and she was kept on vancomycin for an indeterminate time at discharge. Subsequently, she has had multiple readmissions for chronic osteomyelitis with recurrent MRSA bacteremia. She has not had recurrence of her purulent MRSA pericarditis.

Discussion:
Purulent pericarditis secondary to MRSA is an exceedingly rare disease with only a few case reports documented in the literature. A high clinical suspicion is required to aid in rapid diagnosis as mortality approaches 40%. In the case presented, the patient's septic shock could certainly have been explained by her line infection. However, her chest X-ray was the first clue she had a second etiology for her shock and was ultimately lifesaving. Certainly, emergent pericardriocentesis and rapid initiation of antibiotic therapy is indicated in episodes of purulent MRSA pericarditis resulting in tamponade. Yet, given the paucity of cases, the recommended duration of antibiotics is unknown at this point.

Indiana-ACC Poster Competition Abstract

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Title:

LEFT MAIN CORONARY ARTERY DISSECTION AFTER VENTRICULAR TACHYCARDIA ABLATION

Abstract: (Your abstract must use Normal style and must fit into the box. You may not alter the size of this)

Introduction

Coronary artery dissection is a rare, but known complication of catheter-based radiofrequency ablation procedures, specifically on left sided antegrade ventricular tachycardia ablations. Mapping is done via specialized catheters to locate the source of arrhythmia. Access to the left ventricle for endocardial mapping is usually done retrogradely across the aortic valve, where the potential of damage to the coronary ostia is rare, but present. Several studies looking at complications after all types of radiofrequency ablation, found that the risk of peri-procedural myocardial infarction is about 1%, but the studies did not differentiate dissection versus an embolic event.

Case Presentation

Patient is a 59-year-old female with a history ofhypertension, hyperlipidemia, major depressive disorder and with recently diagnosed ventricular tachycardia, who presented to the emergency room withcomplaints of chest tightness that she initially rated 10/10 and on presentation came down to about an 8-1/2 out of 10. This chest pain came on rather suddenly. Shedescribed the pain as pressure on her chest that gets worse with deepbreathing. She did not notice any positional component to this pain. Shedenied any diaphoresis, nausea, vomiting, or shortness of breath. Her most recenthistory is notable for the ventricular tachycardia that was noticed initially onHolter monitoring. The patient actually underwent an ablation for thisventricular tachycardia on two days prior to presentation in another hospital. From thedocumentation, it appeared that the peri-procedural course was uneventful and she wasdischarged in quite stable condition. Herinitial evaluation included normal vital signs. Her EKG shows normal sinusrhythm with inferior ST elevations and reciprocal lateral ST depressions. Her troponin was markedly elevated at 7.41.CKMB was normal. Echocardiogram preformed at bedside showed normal EF with no pericardial effusion or wall motion abnormalities. She was initially diagnosed with pericarditis and was started on colchicine. A nitroglycerin drip was started as well with minimal improvement in symptoms. Over the next two days, the pain persisted. She was started on a heparin drip and a left heart catheterization was performed, which showed a normal RCA but a Left Main dissection that went down to the Left Circumflex artery. Given her clinical presentation, this was thought to be iatrogenic and most likely occurred during her VT ablation procedure. The same night she underwent a two vessel bypass – SVG to LAD and SVG to OM1. LIMA was not used due to concerns for competitive flow closing the LIMA. Patient had an uneventful post-op course and was discharged home in good condition. She continues to do well five months later.

Discussion

This case illustrates a rare but life-threatening complication of antegrade left sided ventricular tachycardia ablation. Unfortunately, the possibility for this complication was not recognized until two days after presentation, in spite of ECG changes suggesting a STEMI, a markedly elevated troponin and an obvious mechanism for coronary artery embolism/dissection. Thankfully, the patient maintained flow down the true lumen of the Left Main and Left Circumflex and maintained normal LV function for a long enough time for the dissection to be bypassed.

Conclusion

Coronary artery dissection is a rare but potentially fatal complication of antegrade left sided ventricular tachycardia ablation. A high index of suspicion has to be maintained when patients present with chest pain and signs of acute coronary syndrome after an ablation.

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CV TEAM RESEARCH

Indiana-ACC Poster Competition Abstract

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Title:

CLINICAL GUIDELINE COMPLIANCE IN MANAGEMENT OF PATIENTS WITH HEART FAILURE WITH REDUCED EJECTION FRACTION (HFREF)

Abstract: (Your abstract must use Normal style and must fit into the box. You may not alter the size of this)

Background- Patients with Heart Failure reduced Ejection Fraction (HFrEF) are those with HF and EFs below 36%. HFrEF patients are at an increased risk for sudden cardiac death (SCD).
Objective-The central hypothesis in this study is that low EF patients commonly do not receive Guideline Directed Medical Therapy (GDMT) and the necessary follow-up after three months post low EF flag.
Methods and Results-By analyzing retrospective patient data of 1,289 patients diagnosed with low EF during the years 2013-2015 in Parkview EPIC electronic medical records, the study hopes to inform the construction and application of a Clinical Decision Support Tool on SCD Primary Prevention Protocol through EPIC. GDMT, Lifevest, and ICD recommendation and usage, along with CADILLAC Risk Score, were variables utilized to assess guideline compliance. With respect to GDMT, 22.34% of patients were not given ACE Inhibitors/ ARBs and Beta Blockers and 15.83% were contraindicated. In terms of Life Vest recommendation, 62.58% of patients were not offered a Life Vest, and 10.40% declined. Moreover, 64.13% of patients did not qualify for an ICD after the three month waiting period following low EF diagnosis, generally because of EF improvement. Finally, 17.93% of patients did not receive a follow-up echocardiogram three to six months following low EF diagnosis. There was a statistically significant (p-value = 0.01263) difference in which compliance seemed to lessen from 2013 to 2015. In 2013, according to Parkview cardiologists, education on the SCD Primary Prevention Protocol was initiated and thoroughly stressed to both nurses and physicians.
Conclusions-Based on the data, the implementation of a Clinical Decision Support Tool in EPIC and further availability of educational resources are needed to ensure all HFrEF patients are treated according to the SCD Primary Prevention Protocols.

Indiana-ACC Poster Competition Abstract

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Title:

Invasive CV Procedural Structured Reporting: A Multi-Disciplinary Approach to Report Development.

Abstract: (Your abstract must use Normal style and must fit into the box. You may not alter the size of this)

Background: Indiana University Health (IUH) implemented an invasive CV structured procedural report product in 2012 which yielded a 45% improvement for CathPCI Registry® data abstraction time (65 minutes to 30 minutes per case), decreased EMR report availability (from 3 days to same day), and improved organizational National Cardiovascular Data Registry (NCDR) metric tracking by 97% (36 weeks to the following week).This allowed for more timely feedback on process improvement initiatives and quality metric tracking.

Objective: With the release of the Advanced Reporting platform, the IUH Super User team routinely met to develop a strategy to fully leverage the functionality of the new platform for continued efficiencies.

Methods: To develop a robust and comprehensive team, stakeholders of the report were identified. Primary team members include Cath Lab Administration, Cath Lab team leaders, Cath Lab hemodynamic database Super Users, CVIS manager, registry data coordinators, charge capture, vendor implementation team, CPACS vendor, and Cath Lab medical director from four IUH facilities. Ad hoc team members included cardiologists, cardiovascular surgeons, non-cardiologist referring providers, nursing, coding/billing, pharmacy, AMI PI team, risk management, and the hemo vendor. The work group used a collaborative approach to develop the strategy of the report while individual subject matter experts develop the granule report details.

- The entire team identified hemo database elements that would populate the physician report and standardized those elements between the four sites.
- Charge capture dictated the verbiage of the procedure detail comments to ensure optimal charge capture. The statements were then reviewed by the providers to ensure effective clinical communication.
- Pharmacy reviewed the medication list to ensure accuracy of the “tall man lettering” and dose defaults to reduce documentation errors.
- The Cath Lab staff worked to standardize daily workflows to support regulatory requirements for conscious sedation, electronic signature for RVVO, and post procedure workflow.
- The Cath Lab Super Users worked with the hemo database vendors for standardized data dictionaries across the facilities.
- CVIS worked with internal and external stakeholders to create and map procedure exam types to corresponding EMR folders (Diagnostic Cath Lab Procedures, Coronary Intervention, PV Folder, Valve Procedure, Structural Heart Procedures, and Cath Lab Miscellaneous Procedures).
- All Cath Lab cardiologists were consulted to ensure that the patient populations could be captured in the updated report.
- The ACC/AHA/ SCAI 2014 Health Policy Statement on Structured Reporting for the Cardiac Catheterization Laboratory was consulted for report content and report layout.
- Hard stops were created by the team to ensure that all regulatory, charge capture, coding, and vital registry components were fulfil by the physicians prior to the finalizing the report.

The NCDR Registry Coordinator worked to ensure the intracoronary devices, closure devices, and PCI lesions all supported abstraction. H&P variables, door to balloon time delay documentation, procedure indications, and noninvasive tests results were all built into the new platform to ensure accurate data abstraction and reporting. The risk factor variables were color coded orange for communication to providers on what variable are used in the CathPCI Registry® risk models.

Results: Once the basic report was developed, the team worked to increase efficiencies for the providers. MACROS were developed based upon patient population and procedures. In conjunction with coding, charge capture, and physician leaders, report MACROS were developed for cardiac biopsy procedures, cardiac transplant workup, IABP placement, temporary pacemaker placement, pericardiocentesis, and pre-liver workups. The macros are utilized by the physicians for standalone or ad hoc procedures. They were designed to meet at least 90% of the clinical scenarios and have the ability to be edited if needed. Auxiliary reports were designed to pull data from the hemo vendor and the physician report to support documentation efficiencies.

Conclusions: The implementation of cath lab structured reporting is a challenging project. It’s vital to have all stakeholders, including the registry data team, to be involved in its development. The reporting template will need to be continuously managed and updated to meet registry changes and regulatory updates. As technology evolves, structured reporting development and implementation teams need to expand and integrate with those non-patient facing departments to create products that meet the needs of the non-traditional procedural report stakeholders. Once the report is developed and implemented with the expanded team, the end result is a product that meets the needs of multiple stakeholders throughout the organization and beyond.

Indiana-ACC Poster Competition Abstract

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Indiana-ACC Poster Competition Abstract

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Title:

Best Practice for Assessing Cardiovascular Risk in Asymptomatic Women 35 to 54 Years

Abstract: (Your abstract must use Normal style and must fit into the box. You may not alter the size of this)

Background: Cardiovascular disease is the leading cause of death for women in the United States, as well as every major country. Unfortunately, disparities in cardiovascular health continue to be a significant public health issue. Although the United States has demonstrated a general decline in cardiovascular mortality over the past few decades, a number of population subgroups including educational background, ethnicity, geography, race, sex and socioeconomic status nevertheless demonstrate remarkable disparities in overall cardiovascular health. People with the lowest social and economic status frequently have the poorest health. The incidence of cardiovascular disease lifetime risk, approximately 39% in women and 50% in men, can be decreased by identification of modifiable risk factors, and subsequent lifestyle changes. The disparities in the occurrence of cardiovascular disease and identifiable risk factors emphasize the need for improved cardiovascular risk stratification and aggressive lifestyle changes. **Objective:** The purpose of this EBP project was to determine the effect of cardiovascular screening after implementing and evaluating cardiovascular risk stratification and lifestyle modification. The PICOT question was “In women between the ages of 35 to 54 presenting to a medical clinic who are asymptomatic for coronary artery disease, how does cardiovascular risk stratification and lifestyle modification compared to current practice effect cardiovascular disease risk over a four-month period?” As a result of identifying a patient’s modifiable risk factors, the patient is empowered to understand his inherent risk and make therapeutic lifestyle changes. **Methods:** An Expedited IRB was obtained. Utilizing Nola Pender’s Health Promotional Model (HPM) and Stetler’s Model of Evidence-Based Practice, the predictive tool, the American College of Cardiology/American Heart Association Atherosclerotic Cardiovascular (ACC/AHA ASCVD) Risk Estimator, was used on a single cohort of asymptomatic women between the ages of 35 and 54 years to implement the 2013 ACC/AHA Guideline on the Assessment of Cardiovascular Risk. A convenience sample of ethnically diverse, uninsured women between 35 to 54 years who presented to a medical clinic in Northwest Indiana, were asked if they would like to participate in this evidence-based practice (EBP) project. Women were assessed for inclusion and exclusion criteria, and an informed consent was requested to be signed. If necessary, a Spanish volunteer was available to translate all the information. Baseline fasting labs including lipid profile and glycosylated hemoglobin (HgbA1c) were scheduled to be drawn pre intervention and post intervention. Participants were initially reassessed for outcome data including lipid profile, blood pressure, apical pulse, height, weight, body mass index, HgbA1c, and ASCVD Risk Estimator score. Participants were also questioned on treatment for hypertension and diabetes as well as their present smoking status. The 2013 ACC/AHA Lifestyle Guideline was used to educate participants regarding modifiable risk factors and therapeutic lifestyle changes including a heart-healthy diet routine physical exercise and smoking cessation. Twelve weeks after the initial intervention, participants were reassessed for all variables. Utilizing SPSS 22, outcomes were analyzed using paired-sample *t* tests, correlations, frequencies, and Chi-square testing. Findings also included descriptive data. **Results:** Paired-sample *t* tests revealed statistically significant differences were noted in four different variables. Results were statistically and clinically significant in modifiable risk factors including triglycerides ($p = 0.043$), weight ($p = 0.006$), and body mass index ($p = 0.004$). Marginal significant difference from pre-ASCVD lifetime risk score to post-ASCVD lifetime risk score ($p = 0.05$). However, the EBP project was only conducted over a 12-week period and still demonstrated some clinical significance. Chi-square findings revealed statistical and clinical significance for both increased exercise duration and smoking cessation at $p = 0.000$. The frequency and descriptive data also supported these findings. **Conclusion:** This EBP project supported the best practice recommendation for assessing cardiovascular risk utilizing the ACC/AHA ASCVD Risk Estimator. This recommendation promotes primary and secondary prevention by identifying and targeting patients at increased risk for cardiovascular disease and improving patient outcomes. Primary and secondary prevention must start as early as age 20 years in order to make a dramatic impact on cardiovascular risk. After actively engaging with each patient in order to screen respective cardiovascular risk, the patient understands his or her individual modifiable risk factors. As a result, healthcare providers can empower every adult patient to adapt healthy lifestyles. **Conclusion:** Advanced Practice Nurses (APNs) must develop, implement, manage and evaluate clinical practice changes such as best practice for assessing cardiovascular disease risk in women, minority populations and the poor. It is imperative that all APNs must continue to be actively involved in some phase of clinical research whether it is actively performing, critically analyzing or implementing the evidence-based practice into clinical practice. This evidence-based practice of utilizing the ASCVD risk estimator tool in conjunction with therapeutic lifestyle allows the respective healthcare provider to individualize each patient’s plan of care as well as promoting patient accountability. As the healthcare system continues to evolve, it is imperative that APNs become leaders in promoting primary and secondary prevention. Advance practice nurses also have an important role in tertiary prevention optimizing a patient’s on-going illness or injury that has long-term effects.

Indiana-ACC Poster Competition Abstract

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