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### Exploring the Relationship between Patient Demographics and Beta-Adrenergic Blocker Resistance prior to Coronary Computed Tomography Angiogram Imaging

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# Exploring the Relationship between Patient Characteristics and Beta-Adrenergic Blocker Resistance prior to Coronary Computed Tomography Angiogram Imaging



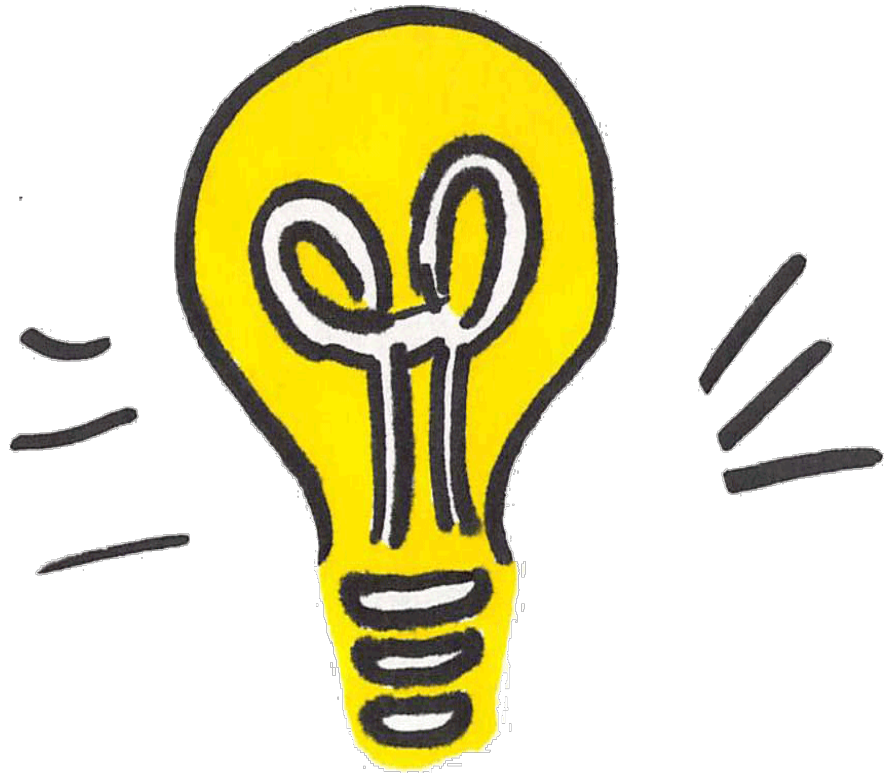
- Frank Boza BSN, RN
- Iliana Santana, RN
- Susana Bringas, BSN, RN
- Cecile Manahan BSN, RN

# Background/Significance



- CCTA is a non-invasive, low risk, and lower cost procedure for diagnosing coronary CV disease
- High-quality CCTA imaging for diagnostic accuracy is dependent on target HR < 65
  - Pre-CCTA IV/PO BB administered to achieve target HR
- Problem: Observed resistance to IV/PO BB preventing target HR observed in the clinical setting
- Knowledge Gap: Limited evidence related to CCTA's and BB resistance

# Research Question(s) & Purpose



- What is the relationship between beta-blocker resistance and patient characteristics related to CT angiogram imaging?
- The purpose of this retrospective-prospective quantitative descriptive-correlational study is to explore potential relationships between patient characteristics and resistance to pre-procedure BB therapy for patients undergoing CCTA imaging.

# Methods



- **Design:** Retrospective-prospective quantitative descriptive-correlational
- **Setting:** Imaging department at SMH
- **Sample:** Convenience sample of patients undergoing CCTA's whom are identified as resistant to BB therapy.
- **Sample Size:** 50 (minimum) Actual 56
- **Recruitment:** N/A
- **Procedure:** Imaging nurses will obtain data by retrospectively and prospectively identifying patients with BB resistance via FIN
- **Data Collection:** Gender, race, age, BB (dose/route), minimum heart rate achieved, primary diagnosis, and other medications, FIN#
  - Excel spreadsheet (password-protected)

# Data Analysis Plan



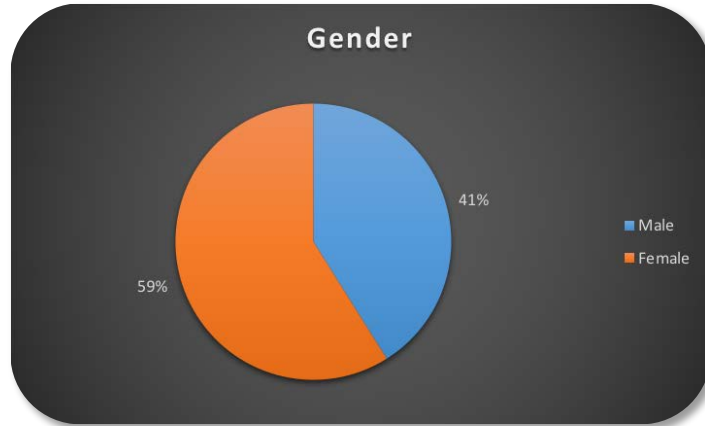
- **Software:** SPSS v27.0
- **Descriptive Statistics:** Distribution of demographic data
  - Frequencies, averages, means, standard deviation and ranges
- **Inferential Statistics:**  
Examine relationships and differences between variables
  - Correlation: Pearson's or Spearman's Coefficient or CHI Square (relationships)
  - Other tests will be considered depending on the results of the correlations
    - T-Tests or analysis of variance (ANOVA)

# Preliminary Descriptive Results

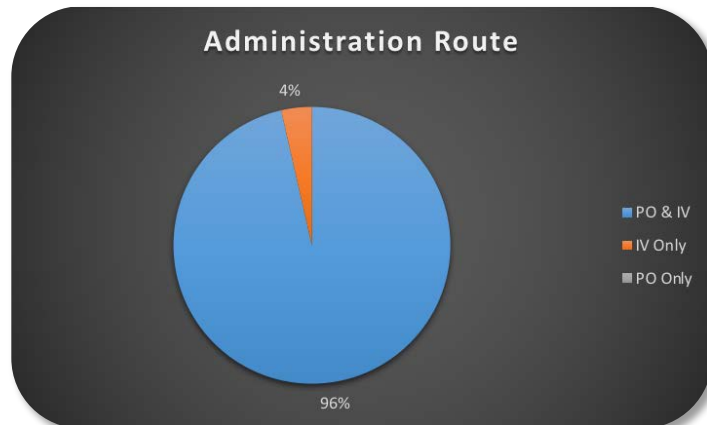
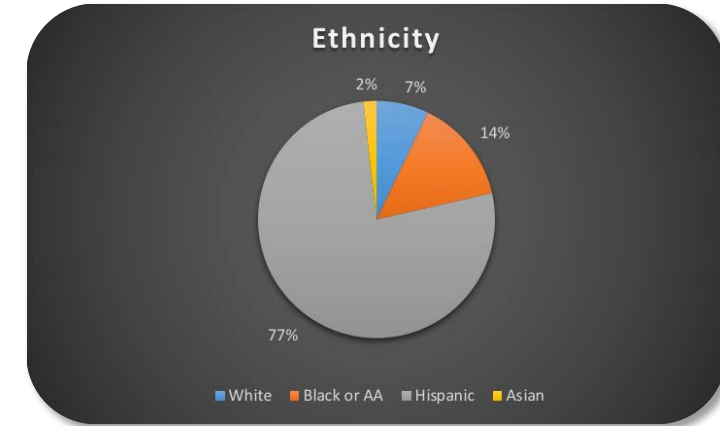
## Participants & Beta-Blocker Dose



Data collected Feb 2022 thru Oct 2022 •  $n = 56$  patients with BB resistance



Age
Mean = 60.27
Mode = 58
Median = 58
Range = 34 - 88



BB Dose Received (mg)
Mean = 122.41
Mode = 130
Median = 130
Range = 30 - 230

Minimum Heart Rate
Mean = 77.88
Mode = 72
Median = 76
Range = 70 - 100



Anxiety Med Taken
Yes = 3
No = 2

# Preliminary Inferential Results

## Pearson's Correlation Coefficient



$n = 35$  patients with BB resistance

		Total BB Dose Administered (mg)	Administration Route(s)	Minimum Heart Rate Achieved	Anxiety Diagnosis	Anxiety Medications
Gender	Pearson Correlation	0.102	0.050	<b>0.308</b>	0.167	-0.089
	Sig. (2-tailed)	0.559	0.774	<b>0.072</b>	0.339	0.611
Age	Pearson Correlation	-0.221	-0.155	-0.201	-0.190	0.176
	Sig. (2-tailed)	0.202	0.374	0.248	0.276	0.311
Ethnicity	Pearson Correlation	-0.241	<b>-.406*</b>	<b>0.073</b>	-0.142	0.152
	Sig. (2-tailed)	0.164	<b>0.015</b>	<b>0.678</b>	0.416	0.385

\*. Correlation is significant at the 0.05 level (2-tailed).

\*\*. Correlation is significant at the 0.01 level (2-tailed).



# Discussion



## Interpretation

- Preliminary results suggest no significant relationships between participant characteristics and resistance ( $n = 35$ )
- However, further Pearson's correlation for  $n = 56$  is pending with potential for multiple linear regression analysis to identify possible predictors of BB resistance.

## • Limitations

- Sample size (generalizability)
- Distribution of subjects

## • Implications/Recommendations for Practice

- Ivabradine studies...
- Recommendations future research
- New medication protocols may be recommended and evaluated for efficacy.

# Conclusion



- Summary
- Next steps....future research

Our findings did not support our initial hypothesis that which is was seen in practice that suggested Hispanic females where more prone to have BB resistance.

However, we did find that anxiety was not a component for BB resistance.

A multi-hospital beta blocker resistance data gathering may be instituted for a larger sample size.

# Limitations



- Convenience sample and sample size will likely prevent generalizability of data
- Minimum sample size may not be achieved impacting statistical significance of results

# Questions

