

2012

Characterization of short QTc interval in Emergency Department patients

Peta-Gay Nolan

Washington University School of Medicine in St. Louis

Stacey House

Washington University School of Medicine in St. Louis

S. Eliza Halcomb

Washington University School of Medicine in St. Louis

Follow this and additional works at: http://digitalcommons.wustl.edu/em_conf

Recommended Citation

Nolan, Peta-Gay; House, Stacey; Halcomb, S. Eliza, "Characterization of short QTc interval in Emergency Department patients" (2012). Conference Abstracts and Posters. Paper 15. http://digitalcommons.wustl.edu/em_conf/15

This Presentation Paper is brought to you for free and open access by the Division of Emergency Medicine/Emergency Care Research Section at Digital Commons@Becker. It has been accepted for inclusion in Conference Abstracts and Posters by an authorized administrator of Digital Commons@Becker. For more information, please contact engeszer@wustl.edu.

CHARACTERIZATION OF SHORT QTC INTERVAL IN EMERGENCY DEPARTMENT PATIENTS

Peta-Gay Nolan MD

Stacey House MD, PhD

S. Eliza Halcomb MD

Washington University in St. Louis School of Medicine

Contributors to Short QTc Interval

- ▣ Congenital
 - Short QTc Syndrome, <300ms
 - channelopathy with gain of function genetic mutations

- ▣ Prescriptions
 - Thiazides
 - Lithium
 - Digoxin

- ▣ Lab abnormalities
 - Hypercalcaemia
 - Hypokalemia

Complications of Short QTc Interval

- ▣ Early repolarization
- ▣ Atrial fibrillation
- ▣ Atrial flutter
- ▣ Ventricular fibrillation
- ▣ Sudden death
- ▣ Inducible ventricular fibrillation

Treatment of Short QTc Syndrome

- ▣ Implantable cardioverter/defibrillator
- ▣ Hydroquinidine (prolongs QT)

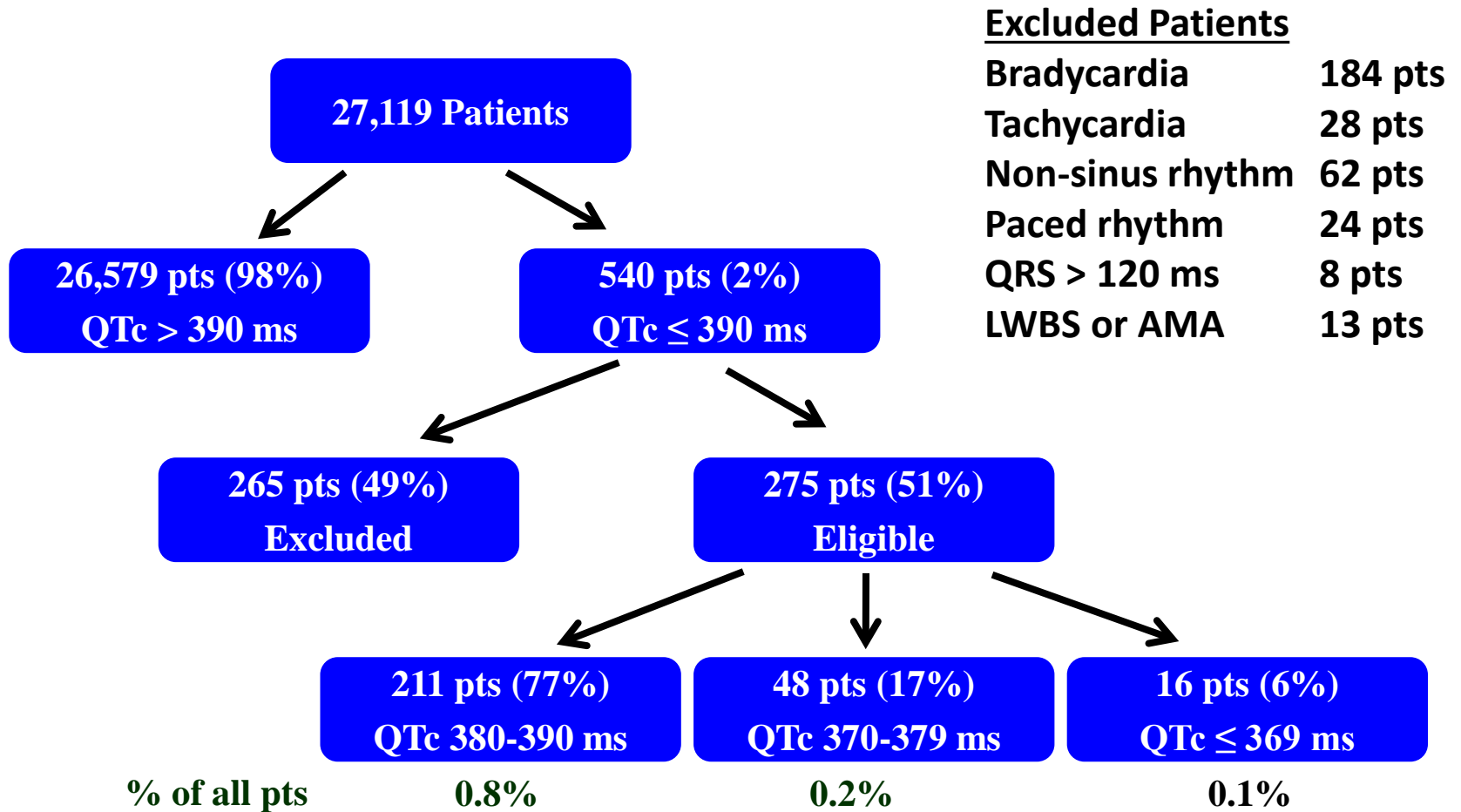
Objective

- The study objective was to characterize the ED population with Short QTc Interval.
 - ▣ Electrolyte abnormalities
 - ▣ Temperature
 - ▣ Chief complaints
 - ▣ Presenting symptoms
 - ▣ Medications

Method

- ❑ Retrospective review of all ED patients who received an EKG from December 1, 2008 to November 30, 2009
- ❑ Inclusion Criteria
 - ❑ QTC \leq 390 ms
- ❑ Exclusion Criteria
 - ❑ Bradycardia (HR < 60 bpm)
 - ❑ Tachycardia (HR > 100 bpm)
 - ❑ QRS > 120 ms
 - ❑ Non-sinus rhythm
 - ❑ Left without being seen

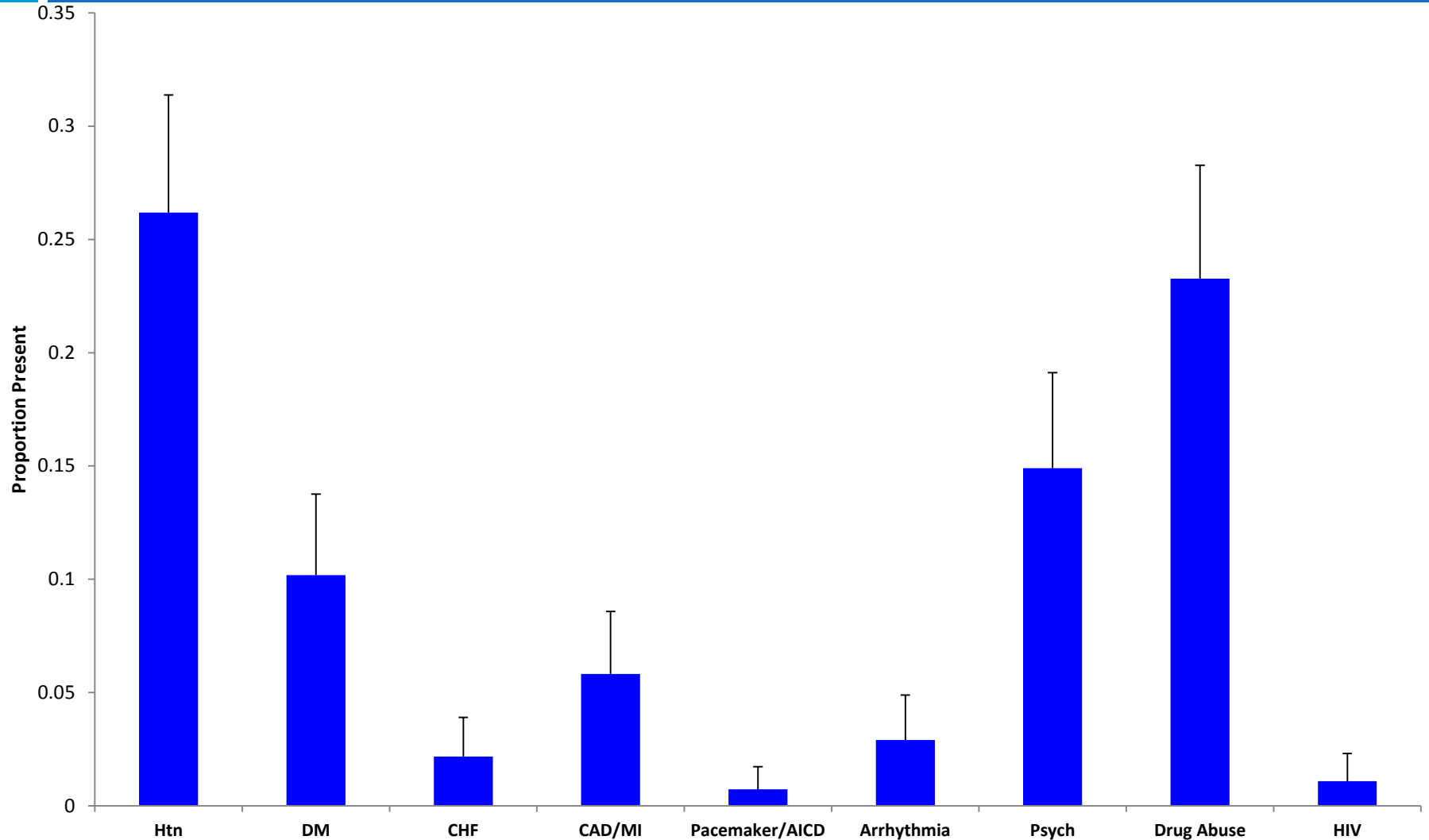
Patient Enrollment



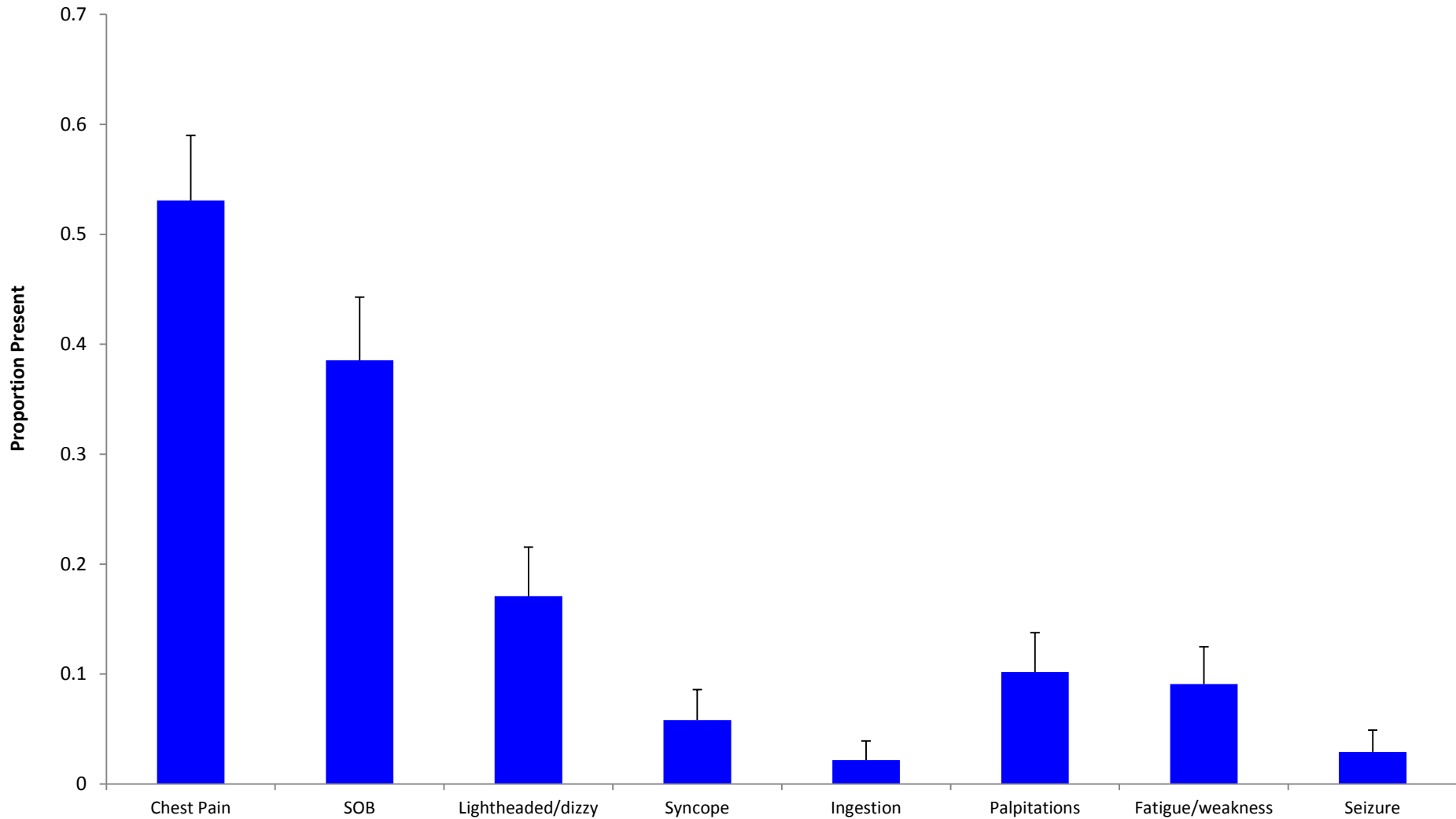
Results

- These pts were 40 ± 19 years old
- Male - 73%, 95%CI 68-78%.

Comorbidities



Presenting Symptoms



Results

- 15% (95%CI 10-20%) had abnormal serum potassium.
- 13% (95%CI 9-18%) had abnormal serum calcium.
- 2% (95%CI 0.5-3.9%) were hyperthermic.

Results

- Only 3% (95%CI 1-5%) were on home medications which shortened QTc interval including <1% on Digoxin, the most commonly described cause of medication-induced short QTc.
- 67% (95%CI 62-73%) were discharged from the ED.
- There were no significant differences among the different length QTc groups with regards to comorbidities, symptoms, electrolyte abnormalities, QTc shortening medications, or disposition.

Discussion

- Shortened QTc interval occurs in 2% of ED patients
- <0.1% have QTc<369 ms
- Very small portion with short QTc interval also have hypercalcaemia, hyperthermia, and/or Digoxin therapy.
- As the majority of these patients are discharged to home, further studies are needed to determine the rates of cardiac events in patients with shortened QTc interval.

References

- Panicker et al, 2012. Early repolarization and short qt interval in healthy subjects. Heart rhythm, vol 9, no 8. 1265-1271.
- Koboza et al. Identifying risk of cardiac events in short QT syndrome. Heart Rhythm, vol 9, No1 , January 2012 . Pages 76-77
- Couderc et al. Short and long Qt syndrome: does QT length really matter? Journal of Electrocardiology43 (2010)396-399
- Viskin, S. 2009. The Qt interval: Too long, too short or just right. Heart Rhythm, vol 6, no 5, May 2009
- Miyamoto , A. et al. Clinical and electrocardiographic characteristics of patients with short Qt interval in a large hospital-base population. Heart rhythm, vol9, No1, January 2012. pages 66-74
- Bjerregaard, P. short QT interval in clinical practice. Journal of electrocardiology 43 (2010) 390-395