

Prolonged QTc in Black and Latinx Cisgender and Transgender Women Who are Living with HIV in an Urban Area

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Background & Introduction

Substantial improvement of health care for people living with HIV (PLWH) has been made in the past two decades (1), changing HIV into a chronic disease with a new set of non-infectious chronic complications such as cardiovascular disease, including cardiac rhythm disturbances. QT prolongation can predispose to torsade de pointes, a polymorphic ventricular tachycardia that occurs at higher rates in PLWH (2), suggesting that QTc interval prolongation may play a role in the increased risk for sudden cardiac death in this patient population.

This study investigates the duration of the QTc interval focusing on black and Latinx cisgender and transgender women living with HIV (WLWH) and examines certain risk factors that may contribute to its prolongation. We hypothesize that minority WLWH will have greater odds of having prolonged QTc.

Materials & Methods

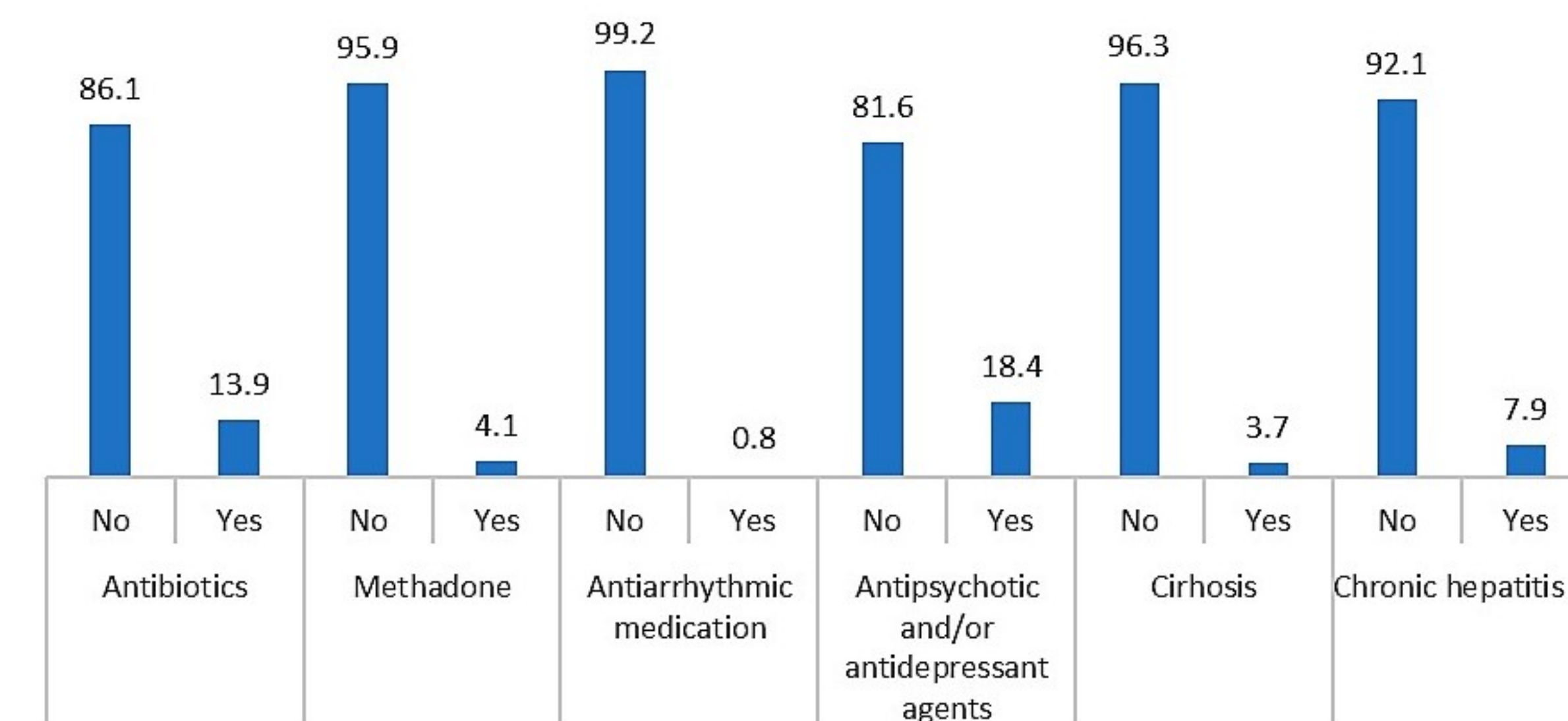
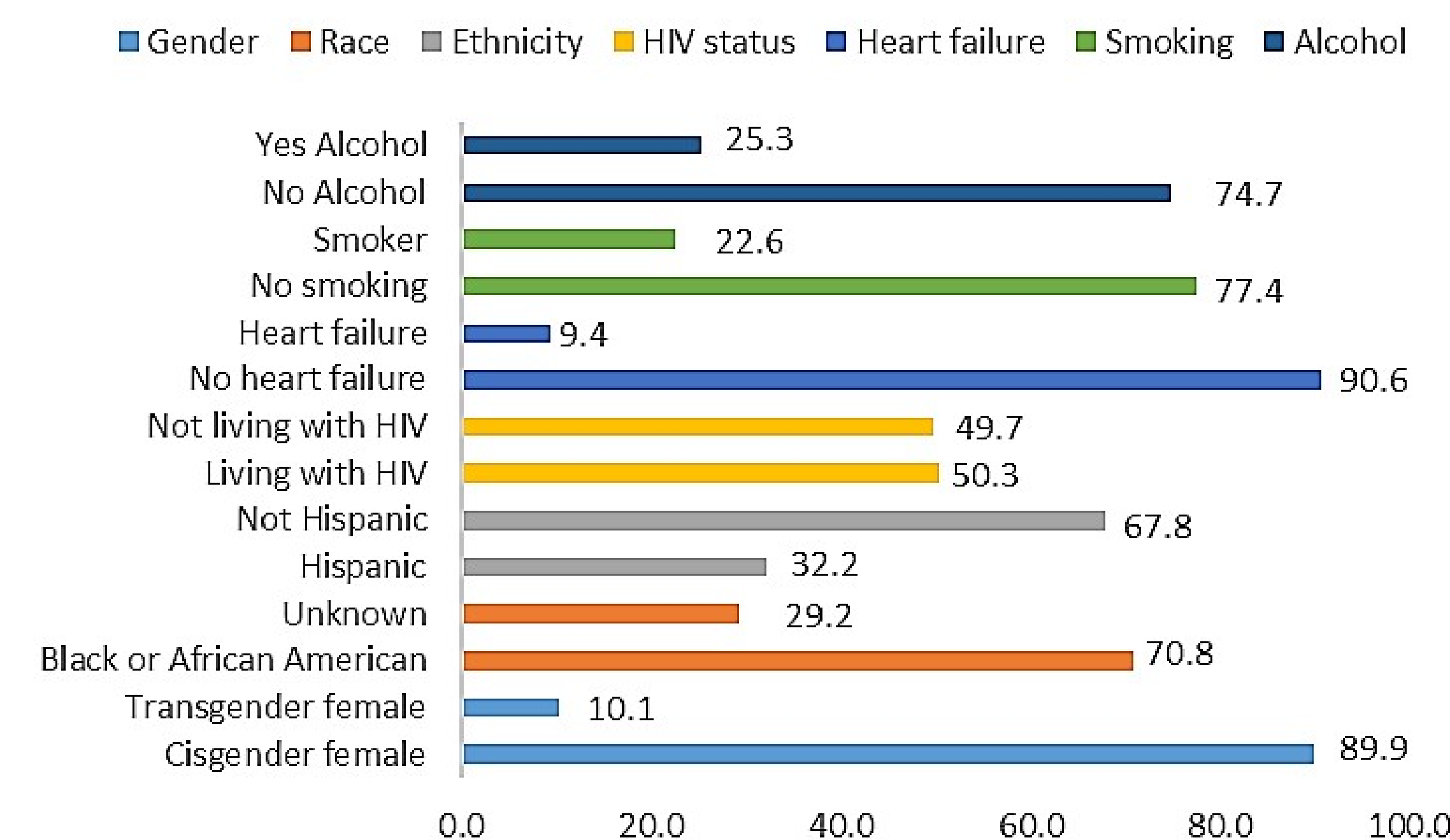
- Retrospective review of electronic medical records of cis and transgender women patients (≥ 18 years old) from 2018 through 2020.
- The 12-lead ECGs were performed for various reasons such as acute coronary syndrome workup, pre-operative evaluation, syncope, or palpitations. ECGs were obtained with the MAC 5500 HD Resting ECG system.
- ECG characteristics were computer-generated. The QTc interval was corrected by Bazett's formula: $QT \div \sqrt{VRR}$ and was considered prolonged if ≥ 460 milliseconds (3).
- The study included 267 participants.
- The mean age of the sample was 51.7 ± 12.8 years.

References

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- Johnson JN, Ackerman MJ. QTc: how long is too long?. *Br J Sports Med*. 2009;43(9):657-662. doi:10.1136/bjism.2008.054734

Results

Demographics and clinical characteristics



Electrocardiogram characteristics

| Electrocardiogram Characteristics | HIV positive, n = 135 | HIV negative, n = 132 | P value |
|---|-----------------------|-----------------------|---------|
| QT, milliseconds, mean (SD) | 388.82 (43) | 388.82 (42.12) | 0.004 |
| QTc, milliseconds, mean (SD) | 448.05 (30.83) | 443.62 (26.58) | 0.21 |
| Prolonged-Qtc, n (%) | 42 (31.1%) | 27 (20.5%) | 0.04 |
| Rate, beats/minute, mean (SD) | 82.80 (17.16) | 75.12 (15.46) | <0.001 |
| PR-interval, milliseconds, mean (SD) | 156.01 (22.48) | 155.56 (22.37) | 0.87 |
| Rhythm | | | |
| - NSR | 94 (69.6%) | 91 (68.9%) | 0.90 |
| - Non-NSR | 41 (30.4%) | 41 (31.3%) | |
| Atrial fibrillation/Atrial flutter, n (%) | 2 (1.5%) | 4 (3%) | 0.42 |
| Left bundle branch block, n (%) | 4 (1.5%) | 2 (1.5%) | 0.39 |
| Right bundle branch block, n (%) | 4 (3%) | 6 (4.5%) | 0.49 |

Univariate and multivariate associations of medications and characteristics with prolonged QTc

| Characteristics | Univariate | | | | Multivariable | | | |
|-------------------|------------|--------|---------|--------|---------------|---------|-------|--------|
| | OR | 95% CI | P value | OR | 95% CI | P value | | |
| Age | 1.019 | 0.997 | 1.041 | 0.0912 | 1.021 | 0.997 | 1.045 | 0.0825 |
| BMI | 0.997 | 0.962 | 1.034 | 0.8894 | 0.991 | 0.954 | 1.029 | 0.6425 |
| Ethnicity | 0.606 | 0.329 | 1.114 | 0.1071 | 0.771 | 0.398 | 1.495 | 0.4417 |
| Living with HIV | 1.842 | 1.062 | 3.195 | 0.0298 | 2.128 | 1.115 | 4.061 | 0.022 |
| Heart failure | 3.883 | 1.672 | 9.018 | 0.0016 | 3.973 | 1.605 | 9.836 | 0.0029 |
| Hepatitis C | 1.132 | 0.418 | 3.068 | 0.8071 | 0.715 | 0.23 | 2.226 | 0.5627 |
| Alcohol | 0.856 | 0.455 | 1.61 | 0.6295 | 0.846 | 0.407 | 1.76 | 0.6549 |
| Smoking | 1.077 | 0.567 | 2.046 | 0.8209 | 0.834 | 0.372 | 1.871 | 0.6605 |
| Methadone | 2.268 | 0.67 | 7.673 | 0.1879 | 1.534 | 0.412 | 5.712 | 0.5232 |
| Psychiatric drugs | 1.238 | 0.627 | 2.445 | 0.5382 | 1.215 | 0.583 | 2.533 | 0.6027 |
| Antibiotics | 0.964 | 0.441 | 2.107 | 0.9275 | 0.811 | 0.338 | 1.947 | 0.6393 |

Conclusions

- Living with HIV and heart failure were associated with higher odds of having prolonged QTc.
- In WLWH, particularly those at higher risk due to comorbidities such as heart failure, implementing routine EKG screening should be considered by clinicians.
- As cardiac rhythm disturbances account for a significant percentage of SCD in PLWH, and black women may be at increased risk for SCD, the risk of cardiac arrhythmias in women of color living with HIV needs to be highlighted and better understood. Efforts should be made to increase the participation of black, Latinx and transgender women in future studies.

