Title on Cardiovascular Disease Mortality

Subtitle About Paper

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# Abstract

BACKGROUND:

Background words go here.

METHODS:

If needed, we can add a color highlight by an additional style option. This is through the RMD or QMD format using a [markdown element with a specific style]{custom-style=’red’}, which will then make the words can be colored in red. However, the reference document has to contain this style.

RESULTS:

Results here

CONCLUSION:

Conclusion is concluded here.

# Introduction

Cardiovascular disease.

# Methods

## Enrollment methods

How many patients were enrolled.

## Data Collection

Data is collected via methods and imaging.

## Statistical analysis

Statistics are performed.

# Results

## Cohort description

The cohort is described.

## Outcomes

The outcomes are measured and analyzed.

# Discussion

## Cardiovascular Mortality

Mortality is a problem.

## Mechanisms

Cardiotoxic mechanisms.

## Strengths and Limitations

This is a description of strengths and limitations.

# Conclusion

The conclusion is made here.

# Tables

## Table 1: Population Overview

Table 1: Predictors of Early Onset Atrial Flutter.

| Characteristics | Overall, N = 921*1* | EO-AFL, N = 240*1* | LO-AFL, N = 681*1* |
| --- | --- | --- | --- |
| Age (years) | 67 (14) | 58 (12) | 71 (13) |
| Male | 560 (61%) | 146 (61%) | 414 (61%) |
| Race |  |  |  |
| Asian | 25 (2.7%) | 5 (2.1%) | 20 (2.9%) |
| Black | 477 (52%) | 154 (64%) | 323 (47%) |
| Hispanic/Latinx | 145 (16%) | 26 (11%) | 119 (17%) |
| Unknown/Mixed | 72 (7.8%) | 21 (8.8%) | 51 (7.5%) |
| White | 202 (22%) | 34 (14%) | 168 (25%) |
| Family History of Arrhythmias | 87 (9.6%) | 31 (13%) | 56 (8.3%) |
| Smoker | 365 (41%) | 101 (44%) | 264 (40%) |
| ETOH Abuse | 248 (28%) | 79 (35%) | 169 (26%) |
| BMI (kg/m^2) | 30 (25, 36) | 32 (27, 38) | 29 (25, 36) |
| Diabetes Mellitus | 368 (40%) | 98 (42%) | 270 (40%) |
| Hypertension | 740 (81%) | 183 (78%) | 557 (82%) |
| Coronary Artery Disease | 220 (24%) | 52 (22%) | 168 (25%) |
| Obstructive Sleep Apnea | 170 (19%) | 54 (23%) | 116 (17%) |
| Cerebrovascular Disease | 122 (13%) | 24 (10%) | 98 (14%) |
| Peripheral Vascular Disease | 52 (5.7%) | 13 (5.5%) | 39 (5.8%) |
| Heart Failure with Reduced Ejection Fraction | 327 (37%) | 92 (41%) | 235 (36%) |
| *1*Mean (SD); n (%); Median (IQR) | | | |
| Bolded cells show significant difference between groups. EO-AFL = early onset atrial flutter; LO-AFL = late-onset atrial flutter. | | | |

## Table 2 - Mortality

# Figures

## Figure 1: Figures

## Figure 2: Curves

# Supplementary Material

## Supplementary Table 1: Title

# References

7. Lown B. Sudden cardiac death – 1978. Circulation [Internet]. 1979;60:1593–1599. Available from: [http://circ.ahajournals.org/ https://www.ahajournals.org/doi/10.1161/01.CIR.60.7.1593](http://circ.ahajournals.org/%20https://www.ahajournals.org/doi/10.1161/01.CIR.60.7.1593)

11. Shah AJ, Wittbrodt MT, Bremner JD, Vaccarino V. Cardiovascular Pathophysiology from the Cardioneural Perspective and its Clinical Applications. Trends in Cardiovascular Medicine [Internet]. 2021;Available from: <https://linkinghub.elsevier.com/retrieve/pii/S1050173821000311>

12. Armour JA. Myocardial ischaemia and the cardiac nervous system. European heart journal [Internet]. 1999;16:1751–2. Available from: [https://academic.oup.com/cardiovascres/article-abstract/41/1/41/317013 http://www.ncbi.nlm.nih.gov/pubmed/8681998](https://academic.oup.com/cardiovascres/article-abstract/41/1/41/317013%20http://www.ncbi.nlm.nih.gov/pubmed/8681998)

14. La Rovere MT, Bigger JT, Marcus FI, Mortara A, Schwartz PJ. Baroreflex sensitivity and heart-rate variability in prediction of total cardiac mortality after myocardial infarction. Lancet [Internet]. 1998;351:478–484. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/9482439>

15. Zipes DP. Influence of myocardial ischemia and infarction on autonomic innervation of heart. Circulation [Internet]. 1990;82:1095–1105. Available from: [http://circ.ahajournals.org/ https://www.ahajournals.org/doi/10.1161/01.CIR.82.4.1095](http://circ.ahajournals.org/%20https://www.ahajournals.org/doi/10.1161/01.CIR.82.4.1095)

18. Zipes DP. Heart-brain interactions in cardiac arrhythmias: role of the autonomic nervous system. Cleveland Clinic journal of medicine [Internet]. 2008;75 Suppl 2:S94–6. Available from: [https://mdedge-files-live.s3.us-east-2.amazonaws.com/files/s3fs-public/issues/articles/content{\\_}75{\\_}Suppl{\\_}2{\\_}SI-94.pdf http://www.ncbi.nlm.nih.gov/pubmed/18540155](https://mdedge-files-live.s3.us-east-2.amazonaws.com/files/s3fs-public/issues/articles/content%7b\_%7d75%7b\_%7dSuppl%7b\_%7d2%7b\_%7dSI-94.pdf%20http://www.ncbi.nlm.nih.gov/pubmed/18540155)

19. Bauer A. Identifying high-risk post-infarction patients by autonomic testing — Below the tip of the iceberg. International Journal of Cardiology [Internet]. 2017;237:19–21. Available from: <http://dx.doi.org/10.1016/j.ijcard.2017.03.087>

20. Akselrod S., Gordon D., Ubel A., Shannon D., Barger C., Cohen R. Power Spectrum Analysis of Heart Rate Fluctuation: A Quantitative Probe of Beat-To-Beat Cardiovascular Control. 1981.

26. Shah AS, Shah AJ, Lampert R, Goldberg J, Bremner JD, Li L, Thames MD, Vaccarino V, Shah ASAJ. Alterations in heart rate variability are associated with abnormal myocardial perfusion. International Journal of Cardiology [Internet]. 2020;305:99–105. Available from: [https://linkinghub.elsevier.com/retrieve/pii/S0167527319355214 http://www.ncbi.nlm.nih.gov/pubmed/32024598](https://linkinghub.elsevier.com/retrieve/pii/S0167527319355214%20http://www.ncbi.nlm.nih.gov/pubmed/32024598)

30. Vaccarino V, Sullivan S, Hammadah M, Wilmot K, Al Mheid I, Ramadan R, Elon L, Pimple PM, Garcia EV, Nye J, Shah AJ, Alkhoder A, Levantsevych O, Gay H, Obideen M, Huang M, Lewis TT, Bremner JD, Quyyumi AA, Raggi P. Mental stress-induced-myocardial ischemia in young patients with recent myocardial infarction: Sex differences and mechanisms. Circulation [Internet]. 2018;137:794–805. Available from: http://ahajournals.org http://www.ncbi.nlm.nih.gov/pubmed/29459465 http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=PMC5822741 https://www.ahajournals.org/doi/10.1161/CIRCULATIONAHA.117.030849