Characterizing Right Ventricle Dysfunction After Loss of Endogenous E2 Production

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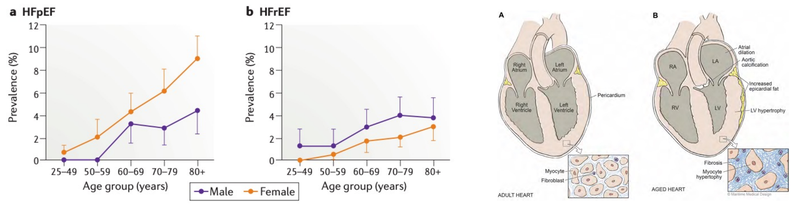
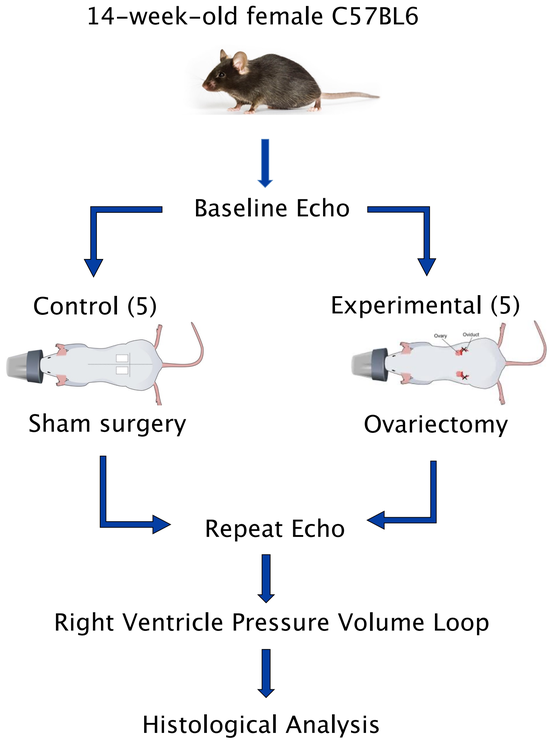
BACKGROUND

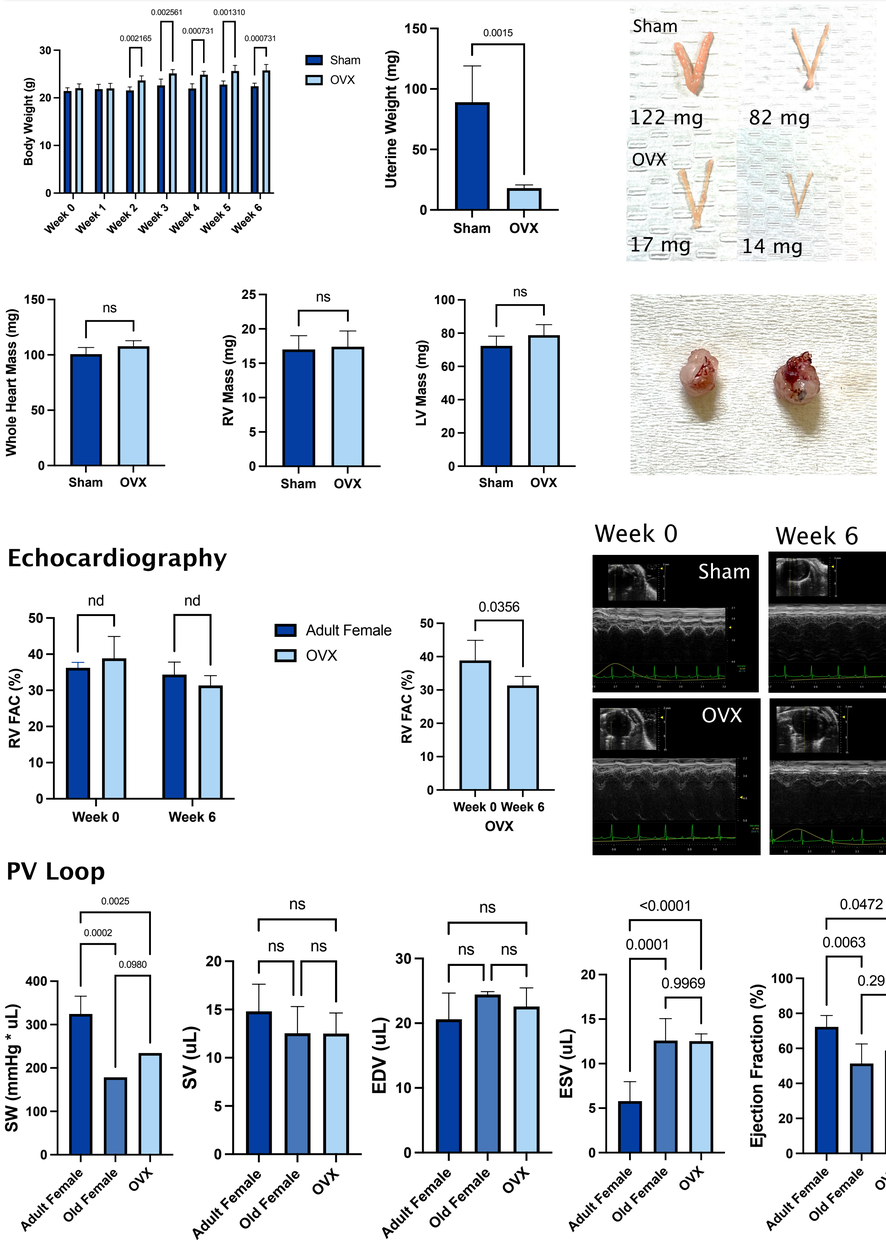


Study Goal: Characterize right ventricle dysfunction after loss of endogenous E2 production using pressure volume loop and echocardiographic analysis.

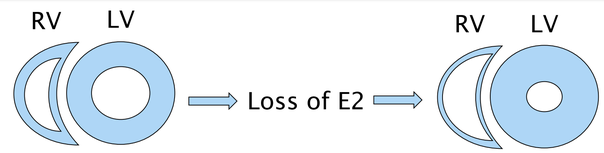
METHODS



RESULTS



DISCUSSION



The loss of estrogen (E2) signaling affects the right and left ventricles of the heart differently, resulting in systolic dysfunction in the RV and diastolic dysfunction in the LV.

Moving Forward: Further investigation is needed into E2's role in the development of HFpEF in women and its differing affects on the RV and LV. Continued research could offer direction in the development of both sex-specific and sex-non-specific therapies for HFpEF.

Limitations: The complexity of the surgical procedures resulted in a smaller sample size than what would be considered ideal for statistical analysis.

CONCLUSIONS

- Estrogen loss leads to eccentric remodeling and impaired systolic function in the right ventricle, while diastolic dysfunction is seen in the left ventricle.
- Similarity in RV dysfunction between aged and OVX female mice suggests that the decline in E2 signaling following estropause contributes significantly to the RV changes observed in aging

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REFERENCES

Aryan, et al., 2020
Dunlay, Roger, & Redfield, 2017
Nio, 2020
Tibrewala MD & Yancy MD, 2019