Chronic binge alcohol & gonadal hormonal loss impair glucose-insulin dynamics in SIV-infected female rhesus macaques

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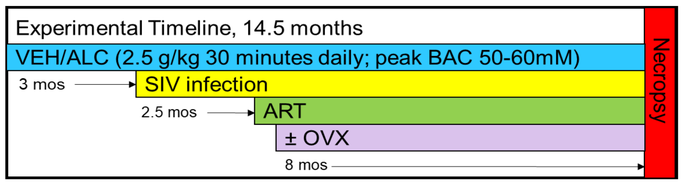
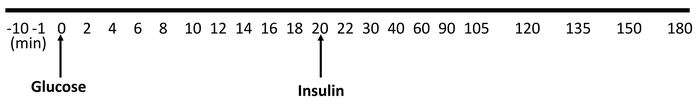
Background

- There are 38 million people living with HIV (PLWH) in the U.S.
- In spite of viral control with antiretroviral therapy (ART), PLWH have an increased risk of chronic conditions
- Prevalence of alcohol use disorders (AUD) is higher among PLWH compared to the general population
- Previous studies in our lab have shown that chronic binge alcohol (CBA) leads to metabolic dysregulation in male rhesus macaques, but pancreatic integrity remains to be investigated
- Our aim was to determine the impact of CBA and gonadal hormone loss (OVX) on glucose-insulin parameters and pancreatic integrity in female rhesus macaques

Methods

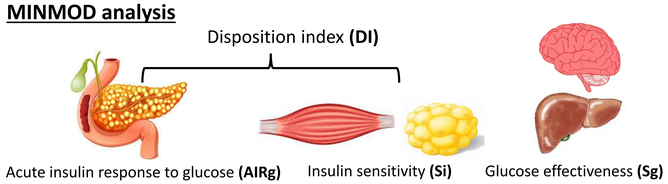


Frequently sampled intravenous glucose tolerance test (FSIVGTT)



Blood glucose measured with a *glucometer*
Serum insulin measured with an *ELISA kit*

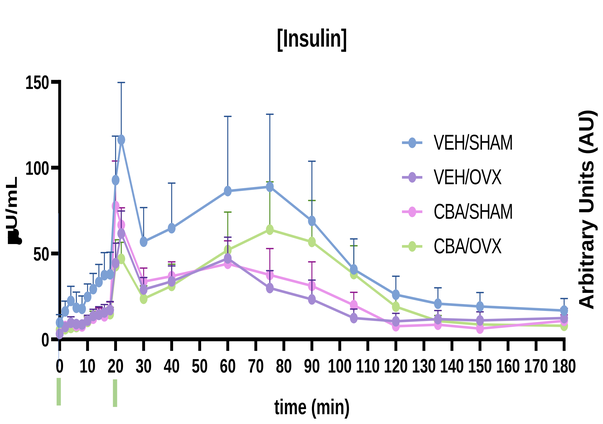
MINMOD analysis

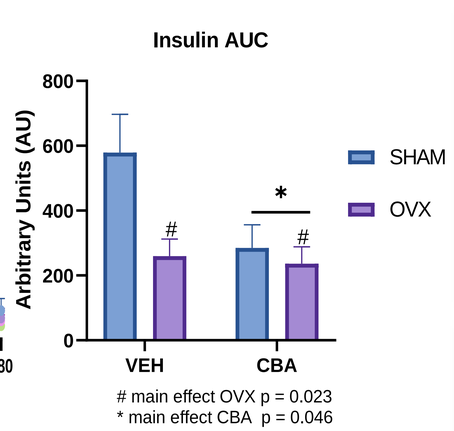


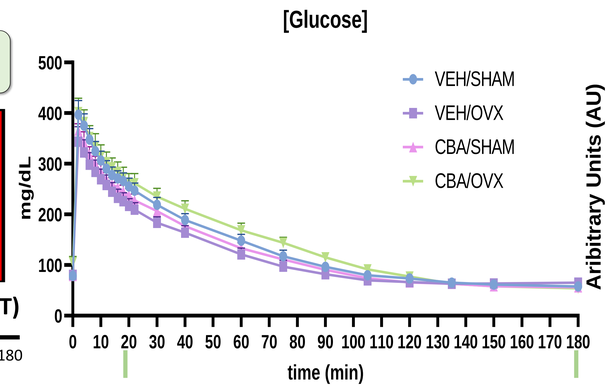
Immunohistochemistry of formalin-fixed, paraffin-embedded pancreatic tissue

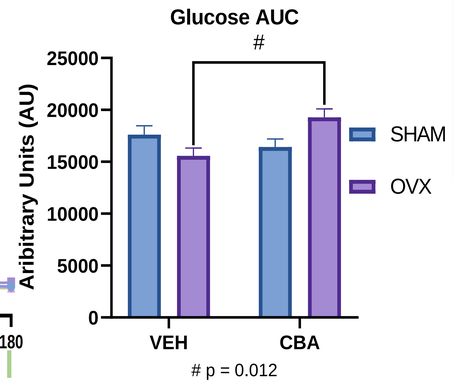
- Novus mouse anti-insulin (1:1000) → Goat anti-mouse 568 (1:1000)
- CST rabbit anti-glucagon (1:1000) → Goat anti-rabbit 488 (1:1000)

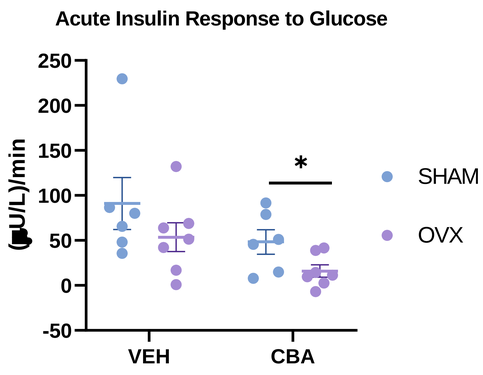
Results

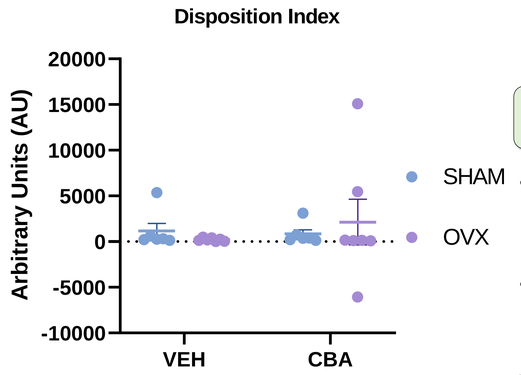


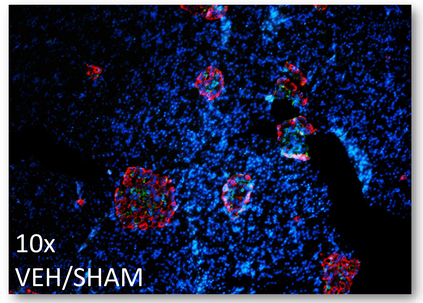


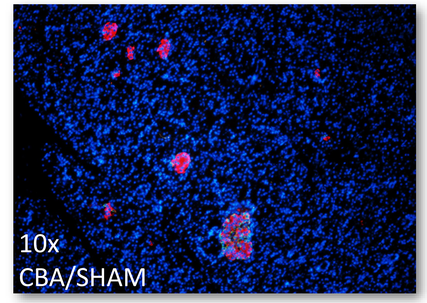


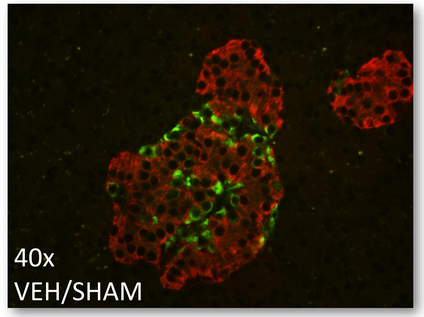


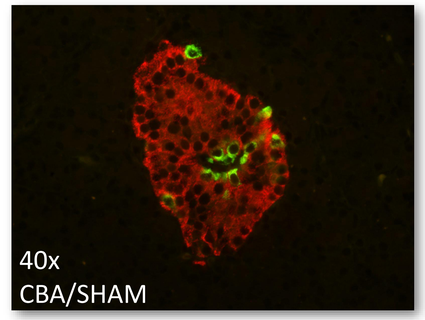


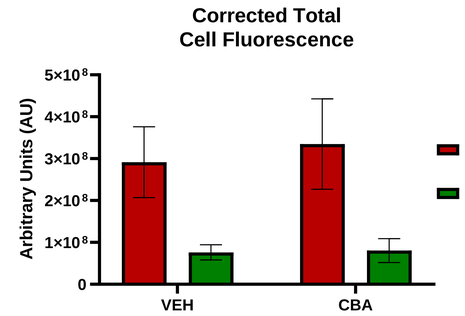


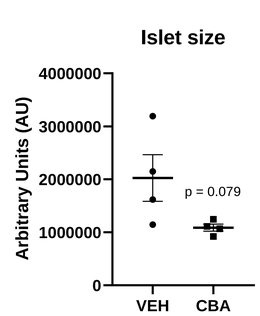












Summary

- Chronic binge alcohol
  - ↓ the acute insulin response to glucose
  - does not alter basal pancreatic insulin or glucagon expression
- Gonadal hormone loss alters insulin and glucose levels as determined by FSIVGTT

This work was funded by National Institute on Alcohol Abuse and Alcoholism (NIAAA) and the National Institute of Health (NIH): 5 T35 AA 21097-8, P60 009803