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Lifestyle Factors Do Not Meaningfully Impact Age-Based AMH Levels in Non-Infertile Women

B.L. Maslow MD MSCTR,[1] K. Mancinelli MSPH, [1] M. Guarnaccia MD MPH, [1] J.U. Klein MD [1]

[1] Center for Fertility Research and Education – Extend Fertility Medical Practice, New York, NY

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CFRE Center for Fertility Research and Education

INTRODUCTION

Increasing age has a well-established negative association on ovarian reserve, reflected in decreasing AMH levels. The role of lifestyle on physiologic AMH levels is unknown.

AIM

The aim of the study was to identify whether lifestyle factors impact AMH levels in a cohort of non-infertile women.

METHOD

Study Design: retrospective cohort

Population: all initial oocyte cryopreservation consultations from 3/1/2016 to 9/30/2018 at Extend Fertility Medical Practice.

Methods: subjects were asked about smoking, drug use, caffeine intake, and exercise frequency. AMH levels were measured at an independent laboratory on the Gen-II ELISA platform. Lifestyle and BMI data were categorized. AMH levels were log transformed to approximate normal distribution. Linear regression analyses were performed controlling for age. The study was granted IRB exempt status.

RESULTS

Table 1		Age	AMH	P*
	Total (n= 2623)	35.9±3.6	1.9±2.7	
BMI	<18 (34)	35.6±3.9	1.9±2.8	0.5
	18-25 (419)	35.8±3.4	2.0±2.8	
	25-30 (121)	36.3±3.5	1.6±2.2	
	>30 (63)	36.5±3.4	1.8±3.0	
Exercise	None (771)	36.0±3.9	1.8±2.6	0.1
	<2x/week (325)	36.0±3.6	2.0±2.5	
	>2x/week (1527)	35.7±3.4	2.0±2.5	
Caffeine	None (1195)	35.8±3.8	1.9±2.6	0.2
	<2 serving/day (1016)	35.9±3.4	1.9±2.4	
	>2 serving/day (412)	35.7±3.4	2.2±2.7	
Smoking	Never (2365)	35.8±3.6	1.9±2.6	0.3
	Prior (76)	37.0±3.1	2.0±2.6	
	Current (182)	35.7±3.6	2.0±2.2	
Drug Use	Never (2431)	35.9±3.6	1.9±2.6	0.07
	Prior (5)	34.8±3.2	1.3±3.0	
	Current THC (178)	35.1±3.3	2.0±1.9	
	Current Other (9)	35.8±2.9	2.1±2.4	

*Table 1 (above): Mean age and median AMH for the entire cohort and by lifestyle category. *significance calculated using linear regression modeling for AMH while controlling for age.*
Figures 1-4 (below, right): Median AMH values by age for each lifestyle category. P>0.05 for all four linear regression analyses (log-AMH).

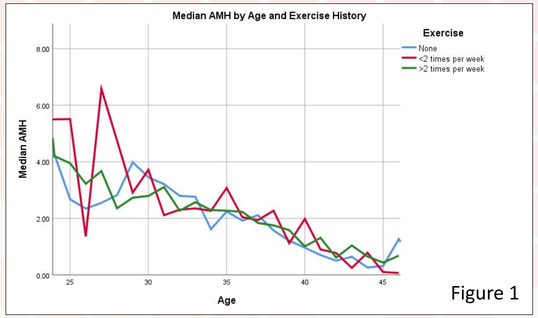

Figure 1

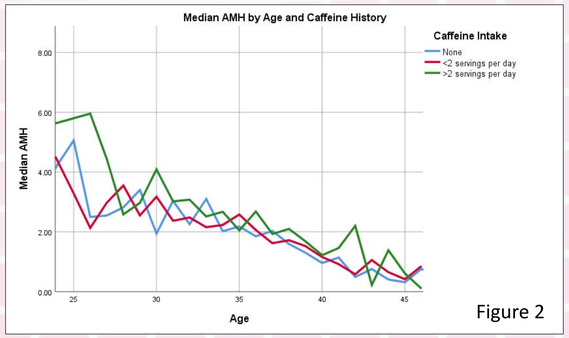

Figure 2

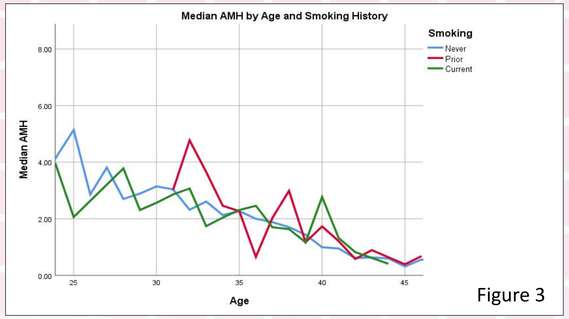

Figure 3

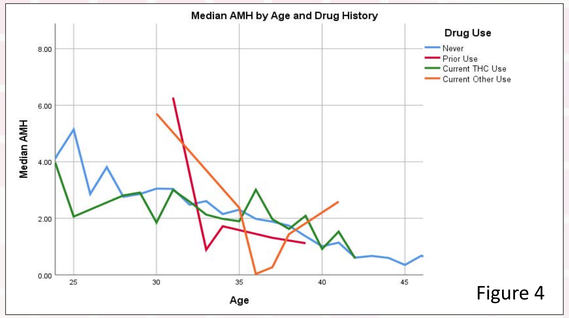

Figure 4

CONCLUSIONS

This data supports that physiologic AMH levels are not meaningfully impacted by lifestyle factors such as exposure to caffeine, smoking, or drug use. The incidence of current smokers in our population was small and therefore the impact may be underestimated. Smoking, drug use, or caffeine intake were not significantly associated with age-controlled AMH levels. There was a trend towards an association with lower AMH levels for underweight (BMI<18.5kg/m2) and obese (BMI>30kg/m2) subjects (P=.03, P=.05 when controlled for age). A healthy body weight and exercise regimen may be associated with higher AMH levels, even when controlling for age.

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Contact Information: Bat-Sheva L. Maslow, MD bmaslowmd@extendfertility.com
CFRE/Extend Fertility 200 W. 57th Street New York, NY 10019 212.810.2828

Disclosures: BLM, KM, MG, JUK have nothing to disclose

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