

Introduction

AMH is a hormone secreted by Sertoli cells in the testes and appears to play a crucial role in male fertility, particularly during early fetal development. AMH levels decrease significantly after puberty, although it continues to be secreted. AMH could indicate a marker of Sertoli-cell activity and testicular function. Previous studies have shown lower levels of AMH in men with oligozoospermia as compared to men with normal sperm concentration (SC).

Material and Method

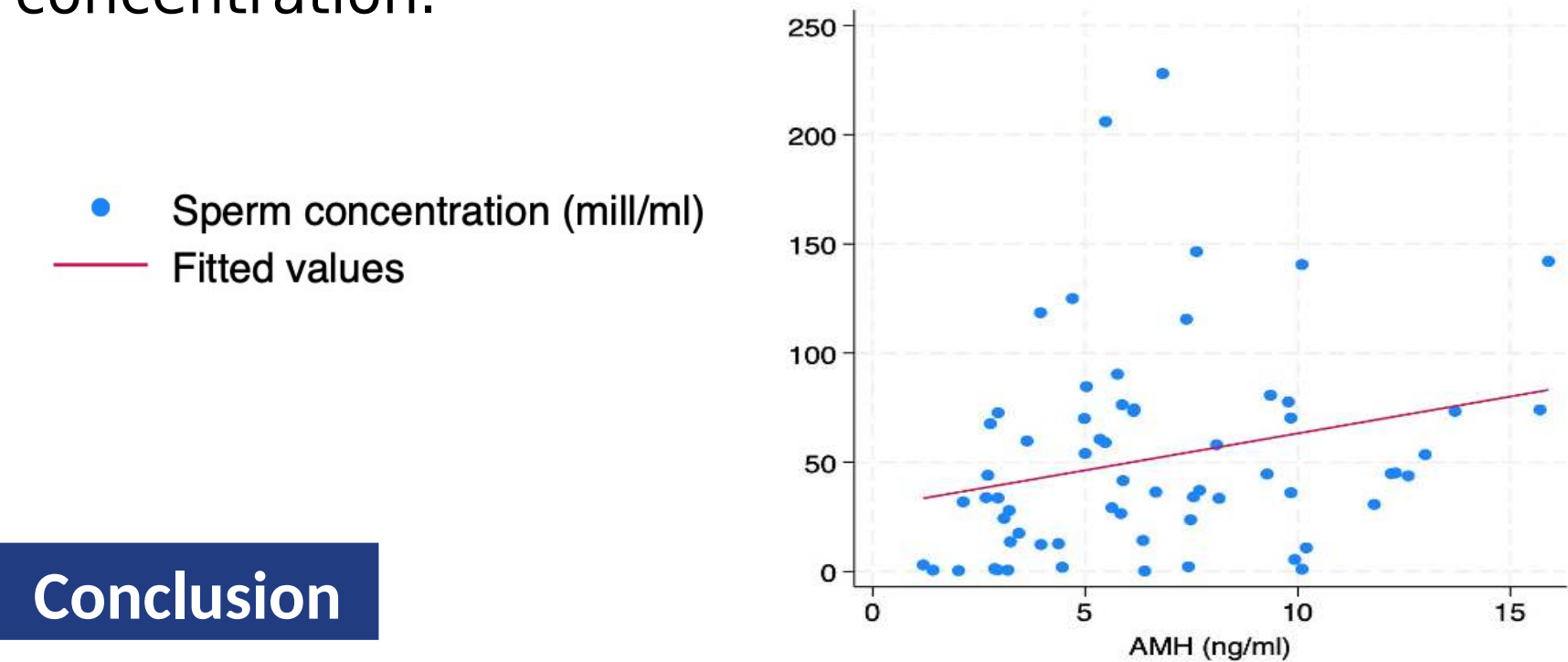
Retrospective study. Data from 65 men at two tertiary referral IVF centers (July 2023-November 2024) undergoing fertility evaluation or IVF/ICSI treatment, including semen analysis and serum hormonal analysis with AMH, FSH and Testosterone, collected no more than 6 months prior to the semen sample. None of the participants were taking clomiphene nor letrozole or receiving gonadotropin therapy. Men with azoospermia or cryptozoospermia were excluded from the analysis. The primary aim was to evaluate the impact of AMH levels on SC. Participants were grouped as follows: Group 1 (G1): reduced SC, with <16 million/ml and Group 2 (G2): normal SC, ≥16 million/ml. From the total cohort, 17 (26.2%) had a sperm concentration of <16 million/ml and 48 (73.8%) of

Table 1. Demographics	Sperm concentration		p
	<16 mill/ml	>16 mill/ml	
N	17 (26.2%)	48 (73.8%)	
Age	36.71 (6.478)	39.65 (7.303)	0.147
BMI	30.1 (4.963)	30.42 (5.160)	0.821
AMH	4.88 (3.005)	7.16 (3.574)	0.022
FSH	5.68 (5.375)	3.43 (1.543)	0.011
Testosterone Total	13.64 (8.100)	15.5 (6.118)	0.328
Prog. motility	33.18 (24.073)	46.98 (17.731)	0.015
Parental consanguinity (1 st or 2 nd degree)	7 (46.7%)	17 (38.6%)	0.585
No Parental consanguinity (1 st or 2 nd	8 (53.3%)	27 (61.4%)	

Results

Men with sperm concentrations below 16 million/mL (G1) were younger (mean age 36.71 vs. 39.65 years, p=ns) and had comparable Body Mass Index (BMI) to men with higher concentrations (G2) (mean BMI 30.1 vs. 30.42). AMH levels were significantly lower in G1 (mean 4.88 vs. 7.16 ng/mL, p=0.02) FSH levels were higher in G1 compared to G2 (mean 5.68 vs. 3.43 IU/L, p=0.01), and progressive motility was lower in G1 as compared to G2 (mean 33.18% vs. 46.98%, p=0.02). No significant differences were found for testosterone levels or history of parental consanguinity. In multivariate linear regression analysis, AMH was the only significant predictor of SC, with a coefficient of 3.596 (p=0.04), indicating that a 1 ng/mL increase in AMH was associated with a 3.596 million/mL increase in sperm concentration.

Fig-1. Association between AMH and Sperm Concentration



Conclusion

These findings underscore the potential role of AMH as a biomarker for sperm concentration.