EXPRESSION AND CONCENTRATION OF ANTI-MÜLLERIAN HORMONE IN THE CAT

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OBJECTIVES

To evaluate the expression of Anti-Müllerian hormone (AMH) in ovaries and testis of cats using the technique of Western blotting and evaluate the serum concentrations of this hormone using an ELISA. We also want to compare the differences between gonadal expression and concentration in males and females.

INTRODUCTION

AMH is a hormone that plays a key role in the process of sexual development of the embryo. It is produced by fetal testes in mammals and inhibits of Müllerian (paramesonephric) duct development in males.

In females, AMH is only expressed in granulosa cells; therefore, the AMH would have a high specificity and sensitive for diagnosing the presence of ovaries, also as a marker for granulosa cell tumors and as a marker for ovarian reserve in ageing in the women.

In the males, it is expressed in Sertoli cells from testicular differentiation up to puberty and the AMH would be a potentially useful marker for the diagnosis of Sertoli cell tumors and as a marker for differential diagnosis of cryptorchidism.

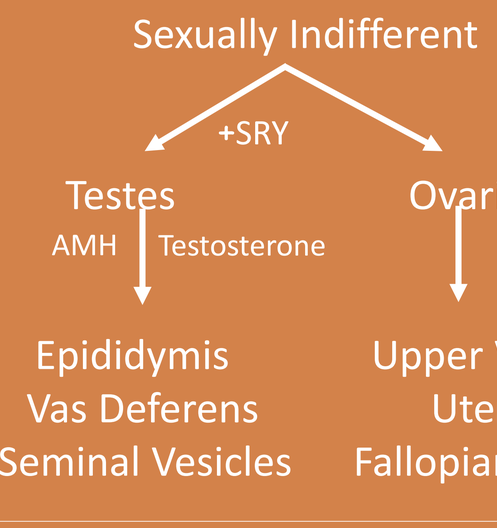


Fig 1. Differentiation of the reproductive tract

MATERIALS AND METHODS

- 16 cats with unknown history { 9 males, 9 females
- We spay previously: ovariohysterectomy and orchiectomy.
- We extracted blood and was stored at -80ºC.
- AMH expression in gonads was measured by western blot assay.
- Serums concentrations of AMH were analyzed using an enzyme-linked immunosorbent assay (Dunwoody Labs, Atlanta).

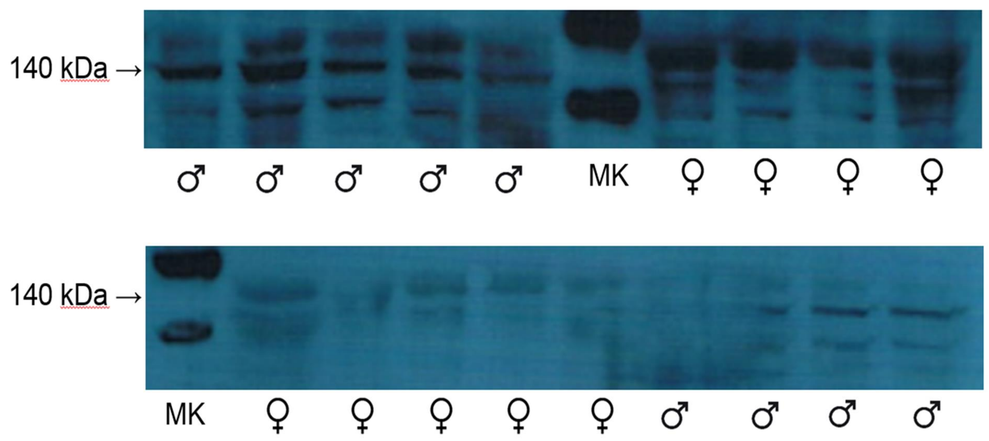
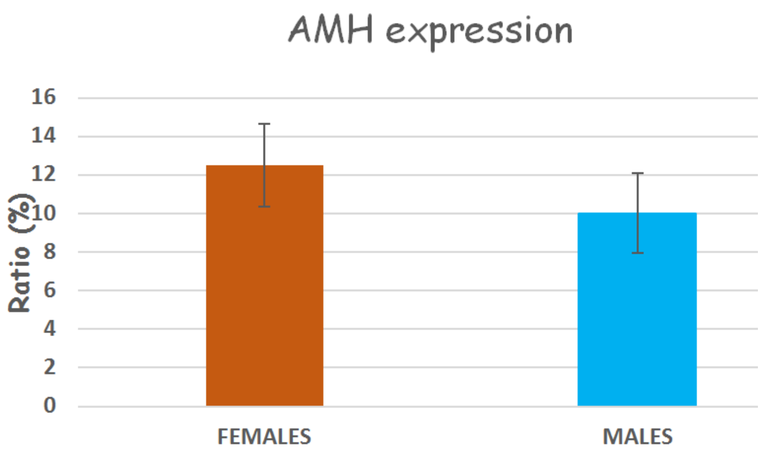
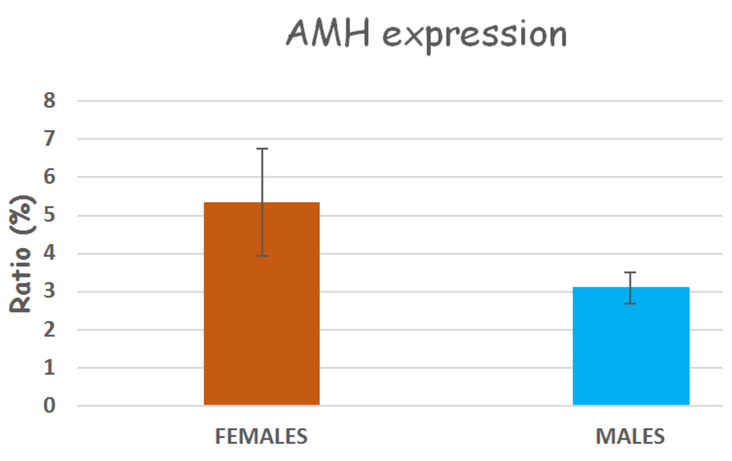


Fig 2. Radiograph films. Males and females, we observed the presence of a band of 140 kDa, compatible with the AMH.

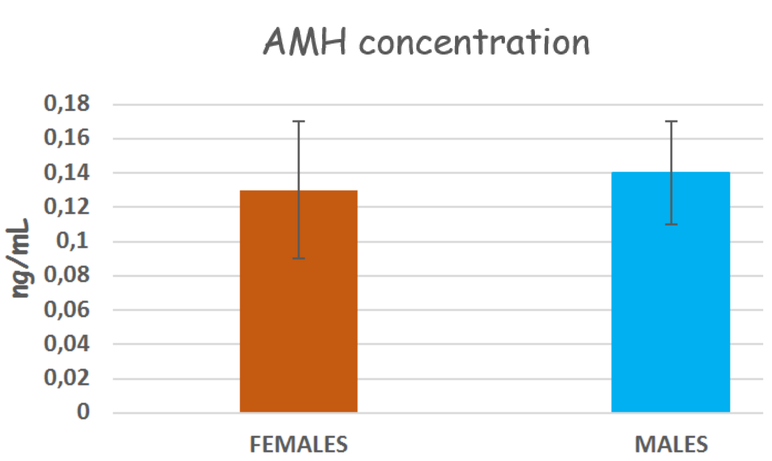
RESULTS



AMH expression in the first radiographic film has a ratio of 12,48 with a standard deviation of 2,15 in females and a ratio of 10,02 with a standard deviation of 2,09 in males.



AMH expression in the second radiographic film has a ratio of 5,35 with a standard deviation of 1,4 in females and a ratio of 3,1 with a standard deviation of 0,41 in males.



AMH concentrations in females has an average of 0,13 ng/ml and a standard deviation of 0,04. In the case of male, AMH concentrations has an average of 0.14 ng/ml and a standard deviation of 0,03.

DISCUSSION

- We observed that males and females have AMH expression in gonads, but we could not observe significant differences between sexes.
- We have lower hormone concentrations than in other studies (Axnér & Ström Holst, 2015 i Place et al., 2011).
- We did not observe differences in blood AMH concentrations between males and females.

CONCLUSIONS

- We can not confirm that there are significant differences in hormone expression and concentration between sexes.
- It would be interesting to expand the study knowing the ages and the stage of the reproductive cycle of females.

References
Fig 1. Teixeira *et al*., 2001.