Pre-Stimulation Level of Serum Anti-Müllerian Hormone is Associated with Subsequent Quality of Ovarian Response to eCG/pLH in the Domestic Cat (*Felis catus*)

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Serum anti-Müllerian hormone (AMH) concentration is a standard diagnostic marker used in human fertility clinics to predict the quality of the ovarian response to gonadotropin stimulation in advance of assisted reproductive technologies (ARTs). While similar diagnostic utility has been demonstrated in livestock species, it is unclear whether serum AMH is equally informative in felids. Here, we present preliminary data from domestic cats (*n* = 13) that underwent ovarian stimulation with equine chorionic gonadotropin (eCG) and porcine luteinizing hormone (pLH). Blood samples were collected during interestrus (progesterone < 0.5 ng/mL) 2-25 days before eCG injection to determine pre-stimulation AMH concentrations. Cats were spayed 15 days after pLH injection, and pre-stimulation AMH was compared to post-stimulation outcomes measured at the time of spay, including serum progesterone and number of ovulation sites. Linear regression revealed that pre-stimulation serum AMH concentration significantly predicted post-stimulation serum progesterone (R^2 = .34, *p* = .046), with greater pre-stimulation AMH levels associated with greater subsequent progesterone output. Additionally, cats with greater levels of AMH prior to eCG/pLH tended to have greater numbers of ovulation sites following stimulation. We then performed receiver operating characteristic (ROC) curve analysis to determine an AMH threshold that distinguished cats with high or low ovulatory responses to eCG/pLH. We defined a high response as ≥6 ovulation sites and a low response as ≤5, because 5-6 ovulations are average for a domestic cat after natural coitus. As indicated by the ROC curve, a pre-stimulation AMH threshold of 4.46 ng/mL classified our cats as high vs low ovulatory responders with 100% sensitivity and 75% specificity. For comparison, control cats (*n* = 7) were induced to ovulate during behavioral estrus by simulated coitus via vaginal swab. In contrast to eCG/pLH-treated cats, control cats exhibited no clear relationships between pre-stimulation AMH and post-stimulation progesterone or number of ovulation sites. These preliminary results suggest that pre-stimulation serum AMH may have diagnostic value to predict the quality of the response to exogenous ovarian stimulation, but not to simulated coital stimulation, in domestic cats.