Gender Effects on Hormonal and Lipid Profiles in Cats Before and After Neutering

J. Cook, *H. Pazak, S. Alexander, S. Tolbert, M. Hoenig. The University of Georgia, Athens, GA and *Michigan State University, East Lansing, MI

Castrated male cats are at higher risk to develop obesity and diabetes than neutered female cats. We compared hormonal and lipid profiles from ten male (M) and ten female (F) weight-maintained cats before, and 4, 8, and 16 weeks after neutering to examine if gender differences in glucose tolerance, lipid metabolism and hormones involved in their regulation might account for the increased prevalence of obesity in the neutered M.

As expected, the BMI before and after neutering was higher in M than in F. There was no difference in energy intake in M and F before neutering. The food intake was lower 8 weeks (p=0.0205) but not at 16 weeks post neutering in F, because M also had decreased their food intake by 16 weeks. Glucose values were only different at 8 weeks post neutering. Insulin was higher in M than in F before (p=0.0039) but lower after neutering because of a marked increase of insulin in F at 4 weeks post neutering (p=0.0075). Leptin concentrations were different after but not before neutering between M and F because leptin increased almost twofold (p=0.0344) in M after castration without change in BMI. The area under curve for NEFA was greater in F than M before (p=0.0039) but not after neutering. Free but not total thyroxine values were higher in F than M before (p=0.0215) but not after neutering. There was no difference in the density of the lipoprotein fractions (VLDL, LDL, HDL 2,3, VHDL) between males and females.

We conclude that there are marked differences in hormonal profiles between M and F which need to be taken into consideration when laboratory data are interpreted. These differences, however, do not explain the greater risk of castrated male cats to develop obesity and diabetes mellitus.