SESSION 25

Nutritional and neuroendocrinological involvement in the control of luteinizing hormone secretion of Mediterranean goat females during the onset of the seasonal anoestrus season

zarazaga@uhu.es

Zarazaga, L.A., Celi, I., Guzmán, J.L., Malpaux, B.*

Universidad de Huelva, E.P.S. La Rábida, Carretera de Palos de la Frontera s/n, 21819, Huelva, Spain.

**Physiologie de la Reproduction et des Comportements, INRA, 37380 Nouzilly, France.*

INTRODUCTION

- Mediterranean female goats shows a clear seasonality of their reproductive activity. This seasonality is controlled by photoperiod but it is strongly influenced by different factors, like level of nutrition and neuroendocrinological systems.
- There are very few studies on goats about the role of the different neuroendocrinological mechanisms on the seasonal variations of the reproductive activity of female goats.

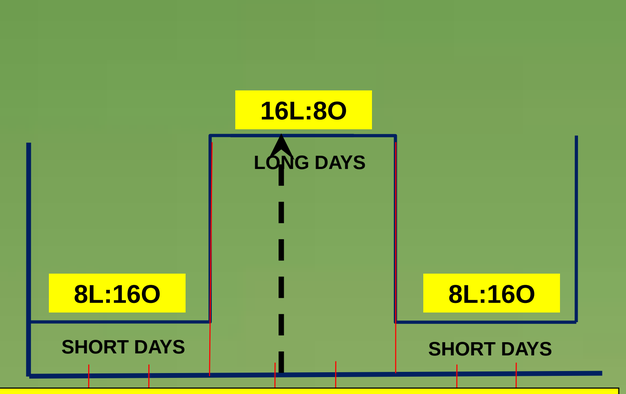
AIMS

- Determine the role of different neuroendocrinological systems (opioidergic, dopaminergic, and serotonergic systems) in the control of LH secretion in Mediterranean goat females and whether such role could be modified by nutrition during the onset of the seasonal anoestrus.

MATERIAL AND METHODS

18 females goats ovariectomized bearing a subcutaneous estradiol implant (OVX+E). Balanced according live weight and body condition score

- n=9 → Control nutrition group (C group): 1 time maintenance requirements
- n=9 → Low nutrition group (L group): 0.7 maintenance requirements



Three-month alternations of short days (8L:16O) and long days (16L:8O), to stimulate or inhibit LH secretion.

TREATMENTS DURING THE ONSET OF THE SEASONAL ANOESTRUS

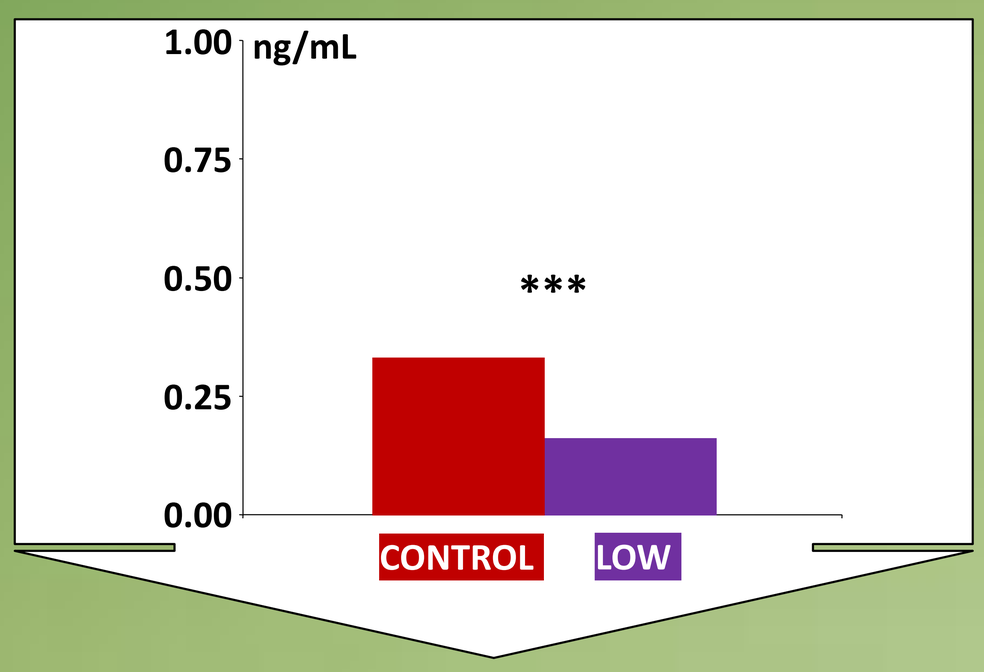
- **NALOXONE** — Opiate receptor antagonist
- **CYPROHEPTADINE** — Serotonergic ($5\text{-}HT_2/5\text{-}HT_{1C}$ receptor antagonist
- **PIMOZIDE** — Dopaminergic D_2 receptor antagonist

6 hours of yugular blood sampling at 10 mins intervals

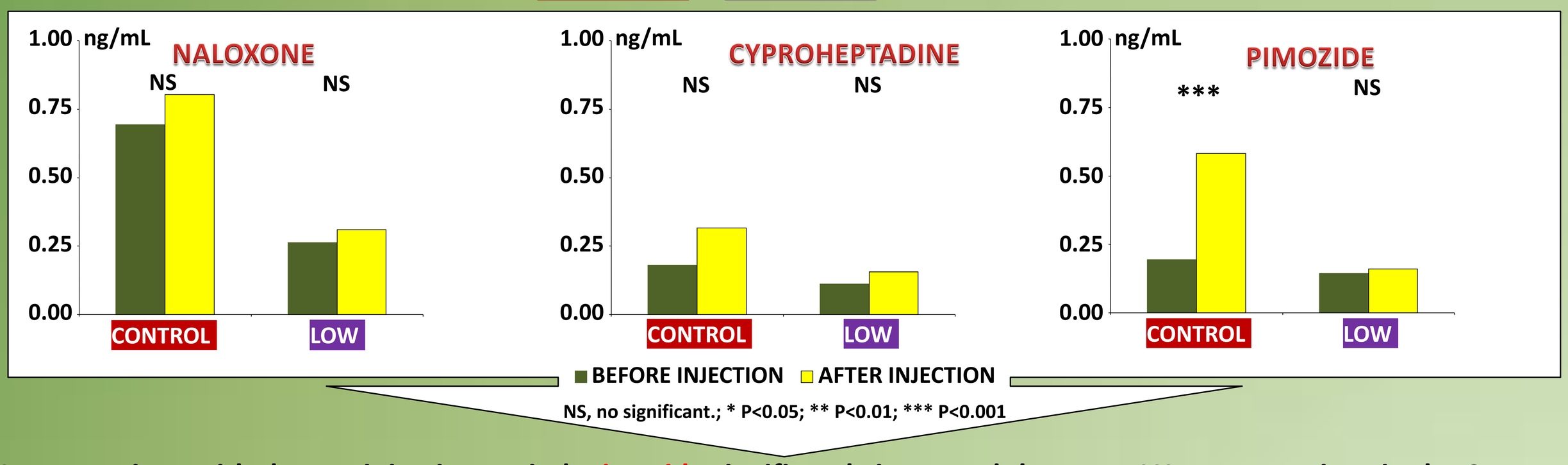
3 h (vehicle) + 3 h (treatment)

→ LH concentrations before and after treatment.

RESULTS



A clear effect of level of nutrition was observed on mean LH concentrations before injection of the different antagonist (0.33 ng/mL vs 0.16 ng/mL, respectively, P<0.001).



NS, no significant.; * P<0.05; ** P<0.01; *** P<0.001

In comparison with the pre-injection period, pimozide significantly increased the mean LH concentrations in the C group.

CONCLUSIONS

Results provide evidence that opioidergic or serotonergic systems seems to be not involved in the inhibition of LH secretion at the onset of the seasonal anoestrous. However, the ability of pimozide to increase LH concentrations could be enhanced by a higher plane of nutrition in Mediterranean goat females.

ACKNOWLEDGEMENTS

This work was supported by Grant AGL2006-01426 from C.I.C.Y.T. (Spain).