Gonadotropin releasing hormone (GnRH) antagonists, which bind to gonadotrope GnRH receptors and compete successfully with endogenous GnRH for specific receptors, have a great potential as contraceptives.\(^1\) In male dogs, a single administration of the potent, third generation GnRH antagonist acyline, reversibly and safely decreased serum gonadotrophins and testosterone (T) concentrations for 10 days.\(^2\) The functionality of the gonadal axis during antagonist treatment has not been described in this species. The objective of this study was to describe T response to GnRH challenge in GnRH antagonist-treated dogs over a 30-day period.

Eight reproductively normal mixed-breed dogs were randomly assigned to acyline (NIH, Bethesda, MD) 330 µg/kg sc (ACY; n=4) or a placebo group (PLA; n=4; day 0), and challenged with the GnRH agonist buserelin (Receptal®, Intervet, Bs As, Argentina) 0.2 µg/kg sc on days -7, 1, 3, 7, 14, 21 and 30. Blood samples for T determinations were collected before (-30 minutes) and 60, 120 and 180 min after the agonist injection. Serum T was measured by electrochemiluminiscense (Elecsys®, Cobas, West Sussex, England) and statistically analyzed by ANOVA for repeated measures (SPSS® Inc. Chicago, IL).

Before treatment (day -1) there were no differences in T serum concentrations between groups (P > 0.1). After the initial treatment, basal (-30 minutes) T differed throughout the days of the experiment between groups (P=0.05), varying in the ACY (P < 0.01) but not in the PLA group (P > 0.1; Figure 1). Furthermore, d 30 differed from days 1, 3, 7 and 10 in the ACY group (P < 0.01; Figure 1). On d -1, the stimulation tests had only a time effect (P = 0.05), although on d 7 (P < 0.01; Figure 2) and 14 (P < 0.05; Figure 3) the response differed between groups.

It is concluded that a single administration of the GnRH antagonist prevented canine gonadal axis from physiologically responding to agonistic challenge for 14 days. These results warrant further work on new GnRH antagonists in male dog reproduction.

**Keywords:** Canine, dog, GnRH antagonist, acyline, GnRH challenge

**References:**