Pharmacokinetics and ovarian stimulatory effects of eCG in the bitch

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Two experiments were designed to investigate the pharmacokinetics and ovarian stimulatory effects of eCG in the bitch. Experiment 1 studied the area under the curve (AUC) of eCG iv and im. Six adult, mixed breed neutered bitches aged between 2 and 5 yr and weighing between 15 and 20 kg were used. Animals were divided into two groups. Group I received 10.000 IU of eCG iv and group II received 10.000 IU of eCG im. Blood samples were taken 25 min before eCG administration, 30 min, 1, 2, 3, 6, 9, 12, 18, 24 h after eCG administration and daily for next 7 days. All samples were centrifuged and stored at -20 ºC until eCG concentrations were measured using a validated enzyme immunoassay in unextracted bitch serum. The AUC was calculated using Sigma Plot\textsuperscript{®} 8.02 (Systat Software, Inc., San Jose, CA, USA). Experiment 2 studied the clinical and cytological effect of several doses of eCG. Twenty five adult, mixed breed, intact bitches aged between 2 and 7 yr and weighing between 10 and 27 kg were used in a randomized design. During late anestrus, bitches were assigned to one of five different treatments: TRT1, 5 IU/kg eCG im (Novormon\textsuperscript{®}, Syntex SA, Argentina; n=5); TRT2, 10 IU/kg eCG im (n=5); TRT3, 20 IU/kg eCG im (n=5); TRT4, 44 IU/kg eCG im (n=5); and TRT5, 50 IU/kg eCG im (n=5). Estrus behavior (score 1-3) was recorded and vaginal cytology samples (score 1-5) were obtained before eCG administration and every other day during 15 days. Blood samples were taken before eCG administration to measure P4 to confirm anestrus. All blood samples were centrifuged and stored at -20 ºC until P4 was measured by solid RIA. Data were analyzed by ANOVA. Data are represented as least square means ± SEM. Significance was defined as P <0.05. In experiment 1, there were no statistical differences in the AUC in bitches treated im or iv (311.51 vs. 254.81±36.91 IU h/ml, P<0.33). In experiment 2, bitches from TRT5 had a significantly higher vaginal cytology scores and estrus behavior scores compared to bitches from TRT1-4 after eCG treatment (5.00±0.46 vs. 2.21±0.21, P<0.0001; 3.00±0.11 vs. 1.08±0.05, P<0.0001; respectively). Conversely, P4 concentrations before eCG administration were similar in all TRT groups (0.26±0.06, P<0.72). In conclusion a single administration of 50 IU/kg of eCG im could be used to induce follicular development in the bitch.

Keywords: Bitch, eCG, area under the curve, estrus induction, follicular development.