

2016 AAVN Symposium Abstract Template

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TITLE: Early energy supplementation in canine neonates

NAME OF MAIN AUTHOR/PRESENTER (first, middle initial, last, degrees/certifications; Please also indicate if you are an ACVN or ECVCN resident, veterinary student, or graduate student):

Claire, Mariani, DVM, PhD

NAMES OF CO-AUTHORS (or sponsor if student; please indicate with * if the co-author is a member of AAVN):

Hanna Mila¹, Alice Le Gal¹, Aurélien Grellet^{1,2}, Claire Mariani², Alexandre Feugier², Sylvie Chastant-Maillard¹

NAME OF INSTITUTION (if more than one, use superscript numerals after each author name above and before institution name):

¹ Reproduction, Toulouse National Veterinary School, UMR INRA/ENVIT 1225 IHAP, Université de Toulouse, INP-ENVIT, Toulouse, France

² Royal Canin, Aimargues, France

ABSTRACT BODY (400 words maximum; no titles or headings; include objective/hypothesis, animal care and use protocol, methods, results, conclusions, and summary):

Neonatal mortality, from birth to 3 weeks of age, affects 15 to 25% of newborn puppies¹. Energy intake is one of the factors limiting their survival since puppies with 4% weight loss over the first two days of life are at greater risk of mortality¹. The aim of this study was to evaluate the impact of early supplementation with a milk replacer enriched with a glucose polymer (maltodextrin) on puppies' growth and metabolism up to 48 hours of age.

The protocol was approved by the Royal Canin Internal Ethics Committee. The study was carried out within a multi-breed kennel on 271 puppies born from 56 bitches. At 12 hours of age, within each litter, puppies were allocated into two groups (supplemented [S] or controls [C]) with a stratified randomization based on their birth weight. S received a milk replacer (Baby dog milk ®, Royal Canin, Aimargues, France) enriched in maltodextrin at the dose of 1.5ml/100g/bw

every 6 hours from 12 to 48 hours of age. But for their mother's milk, nothing was given to C. At 12, 24, 48 hours, puppies were weighed and their rectal temperature and blood glucose were measured. Linear mixed models (generalized where appropriate), with litter as a random term, were used to examine the impact of the supplementation on glucose, temperature and growth rate, and on the proportion of at-risk puppies according to growth rate between D0 and D2 (<-4% [1]).

49.4% (134/271) puppies were S. At 12h, there was no differences between groups in weight ($p=0.12$), blood glucose ($p=0.74$), or temperature ($p=0.82$). S and C had a mean glycemia of $127\pm42\text{mg/dL}$ vs $121\pm41\text{mg/dL}$ at 24h ($p=0.14$), and $111\pm33\text{mg/dL}$ vs $110\pm39\text{mg/dL}$ at 48h ($p=0.40$). The mean temperature was not different between groups at 24h: $36.8\pm1.0^{\circ}\text{C}$ vs $36.7\pm1.0^{\circ}\text{C}$ ($p=0.12$), but it was increased in S vs C at 48h: $36.7\pm0.9^{\circ}\text{C}$ vs $36.4\pm1.3^{\circ}\text{C}$ ($p=0.03$). S had a higher growth rates than C (12-24h of life: $1.1\pm9.5\%$ vs $-0.12\pm4.3\%$; 12h-48h of life: $7.2\pm7.8\%$ vs $2.9\pm10.7\%$; $p<0.001$ in both tests). Supplementation decreased the number of at-risk puppies (growth rate <-4%): 28.4% (38/134) for C vs 16.2% (21/130) for S ($p=0.005$). This study showed the interest of energy supplementation through milk replacer administrated immediately after birth on early growth rate and body temperature. Early energy supplementation also reduces the number of puppies at risk of neonatal mortality.

^[1] Mila et al. J Anim Sci. 2015;93:4436-4442