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Excretion of Canine Parvovirus Type 2 (CPV-2) During Gestation and Lactation in Bitches and Puppies

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Canine parvovirus type 2 (CPV-2) is a frequent digestive pathogen in dogs, responsible for high mortality rates in puppies. The control of the infection by disinfection and isolation of patients is of limited efficiency, raising questions about the contagion sources. The aim of our study was to evaluate the epidemiological role of dams in viral circulation during the reproductive period.

A total of 73 bitches (mean ± standard deviation: 4.4 ± 1.9 years old) from one kennel were enrolled in the study. All were annually vaccinated (Nobivac DHPPi-Lepto vaccine; MSD, Beaucouzé, France). Forty-one dams were followed from mating to whelping and 32 dams were followed from whelping until weaning. All puppies from the 32 lactating dams (n = 134) were followed since 3 until 8 weeks of age. Canine parvovirus type 2 fecal excretion was evaluated by real time PCR on rectal swabs[1] every 14 days during gestation (dams) and every 7 days during lactation (dams and puppies). Data were analyzed through logistic regression and mixed linear models.

A total of 1241 samples were collected. During pregnancy, 80% of the bitches excreted CPV2 at least once, but only one sample was above the quantification threshold (2×10^5 copies/g feces). During lactation, all bitches were found positive at least once (and 3 times in mean) and 64% went above the quantification threshold at least once. During lactation, excreted viral loads were significantly higher at D42 (5×10^8/g feces; $p = 0.001$), D49 (8×10^8/g feces; $p < 0.001$) and D56 (10^9/g feces; $p < 0.001$) compared to the early lactation (< 10^6 copies/g feces; D7 to D28). Despite threshold for a clinical parvovirosis is 5×10^8/g feces, none of the bitches expressed any symptom. In 28% of the cases, the dam excreted before her puppies. Viral loads excreted by puppies were not correlated with those excreted by dams. The proportion of puppies excreting viral loads above the clinical threshold increased from D17 to D52 (from 2 to 76% per litter), with overall mortality of only 3% (4/134).

This study demonstrates that appropriately vaccinated adult female dogs may excrete CPV2 during gestation and lactation. Due to the high quantity of CPV-2 excreted, females probably represent a major source of contamination for their puppies. Viral excretion by bitches after lactation until the next breeding period and by males would be interesting to follow to better understand the role of adults in CPV2 circulation.

Disclosures

No disclosures to report.

References

1. Grellet A, *et al*. *Prev Vet Med*. 2012;106:315–323.

Speaker Information

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