

ABSTRACT

Determination of the efficacy of a killed, local, whole cell canine vaccine against clinical and renal carriage in dogs and production for use to prevent leptospirosis in dogs in Trinidad.

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Leptospirosis is a zoonosis that causes mild to severe clinical disease. Currently, in Trinidad and Tobago, the West Indies, recent serological studies on dogs have demonstrated that *L. interrogans* serovar Copenhageni is the predominant agent responsible for canine leptospirosis, which is not included in any of the commercially used canine vaccines for leptospirosis. A killed whole-cell vaccine containing serovar Copenhageni was produced and administered to 12 Beagle dogs, the first dose given at 8 weeks of age, and the second (booster) dose at 12 weeks of age. Ten unvaccinated control dogs of the same age group were included. A live, virulent inoculum of *Leptospira* (1.0×10^9 - 5.0×10^9 leptospire per dog) was used to challenge the dogs at two weeks (Study 1) and 14 months (Study 2) after administration of the booster vaccine. An antibody response, with booster effect was produced which persisted until 14 months post-vaccination. The antibody titres were protective in preventing leptospiral infection since, in Study 1 (onset of immunity), there was 100% (5 of 5) mortality rate due to acute disease in the unvaccinated dogs while only a mild conjunctivitis was observed in 20%, (1 of 5) of the vaccinated dogs, which disappeared after 1 day. In Study 2 (duration of immunity), mild clinical disease was observed in the 40 % (2 of 5) controls as expected being older dogs, while the vaccinated dogs were clinically normal. A high IL-10: TNF- α was observed in the unvaccinated dogs soon after challenge. Monitoring of urine samples of both the vaccinates and unvaccinated controls for leptospiuria revealed a lower frequency of shedding of leptospire in vaccinated dogs (16.7 %) compared to unvaccinated dogs (54.3 %) for both studies. The vaccine produced was therefore successful in preventing acute clinical leptospirosis, and in reducing the renal carrier state and leptospiuria.

Key words: antibodies; canine; Copenhageni; cytokines; leptospirosis; vaccine; West Indies