Thyroid hormone profiles in pregnant euthyroid and supplemented hypothyroid bitches
J.T. Cecere, a D.L. Panciera, b B.J. Purswell a
aDepartment of Large Animal Clinical Sciences and bDepartment of Small Animal Clinical Sciences, Virginia-Maryland Regional College of Veterinary Medicine, Virginia Tech, Blacksburg, VA

Autoimmune thyroiditis is a hereditary disease in many dog breeds that often leads to hypothyroidism. Decreased fertility has been found in bitches with experimentally-induced hypothyroidism. In addition, decreased viability at birth, increased periparturient mortality, and reduced birth weights occur in puppies born to hypothyroid bitches. It is well documented that women with hypothyroidism require increased doses of levothyroxine during gestation to maintain a euthyroid state and deliver normal children, but this is unknown in dogs. The goal of this study was to determine if pregnant hypothyroid bitches need increased doses of exogenous levothyroxine to maintain normal plasma hormone concentrations. We hypothesized that the treated hypothyroid dogs would require increased dosages of levothyroxine to maintain a euthyroid state during pregnancy. Six bitches with experimentally-induced hypothyroidism administered levothyroxine (0.02 mg/kg q 24 h) supplementation and four euthyroid bitches were used in this study. Serum samples were collected weekly from ovulation to the end of pregnancy and assayed for total thyroxine (T4), free T4 (FT4), thyroid stimulating hormone (TSH), and 3,5,3’-triiodothyronine (T3). Supplemented hypothyroid bitches showed no clinical signs of hypothyroidism during the study and all bitches whelped normal litters. No significant changes in any of the thyroid hormones were detected during pregnancy in the euthyroid bitches. The supplemented hypothyroid bitches had elevated serum concentrations of T4 and FT4 at multiple time points during the study. These results indicate that standard levothyroxine supplementation in pregnant, experimentally-induced hypothyroid bitches is sufficient to maintain a euthyroid state. In addition, no significant changes in the thyroid hormone profiles occur in normal, pregnant bitches.

Keywords: Hypothyroidism, canine, levothyroxine, pregnancy