LUTEINIZING HORMONE RECEPTOR (LHR) EXPRESSION IN CIRCULATING CANINE LYMPHOCYTES

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Canine lymphoma is a common malignant tumor in dogs. Lymphoma is 3-4 times more common in spayed female (F/S) and neutered male (M/N) dogs compared to intact females (F/I) and males (M/I). Luteinizing hormone receptors (LHR) have been found in normal and neoplastic canine lymphatic tissue. The purpose of this study was: (1) to determine if LHR is expressed in circulating canine lymphocytes, (2) to immunophenotype the lymphocytes (B- or T-) expressing LHR, (3) to quantify the level of cellular expression of LHR in circulating lymphocytes. Venous blood was collected from 12 dogs (3 F/S, 3 F/I, 3 M/N, 3 M/I) and placed in EDTA vacutainers. All samples were transferred to centrifuge tubes, and lymphocytes were isolated using histopaque (1077 density). Nonspecific binding was blocked with Mouse Serum FcRn FcR (1:10 dilution). Goat polyclonal LHR (1:50 dilution), mouse anti-dog CD3:FITC (1:10 dilution), mouse anti-canine CD21:Alexa Fluor 647 (1:10 dilution), and goat f(ab')2 IgG negative control:RPE (1:10 dilution) were added to their respective tubes. The cell suspensions were analyzed on a flow cytometer at the Oregon State University Core Facility. Average percentage LHR expression was compared between intact and spayed/neutered dogs using a Student’s t test and significance was defined as p<0.05. All 12 dogs expressed LHR in both B- and T-lymphocytes (Table 1). Spaying and neutering increased the expression of LHR in circulating T-lymphocytes (p=0.049) but not in B-lymphocytes (p=0.447). This is the first study to show LHR in circulating B- and T-lymphocytes. Future research will focus on using a gonadotropin-releasing hormone (GnRH) agonist as a complementary treatment for canine lymphoma.

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<th>F/S</th>
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<tr>
<td>B-lymphocyte</td>
<td>8.0±5.2%</td>
<td>6.1±0.3%</td>
<td>20.3±11.2%</td>
<td>19.0±18.1%</td>
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<td>T-lymphocyte</td>
<td>13.6±5.0%</td>
<td>9.9±2.1%</td>
<td>19.6±10.0%</td>
<td>11.1±2.8%</td>
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Table 1. Mean±SD percentage of lymphocytes expressing luteinizing hormone receptors (LHR) in spayed (F/S) and intact female (F/I) and neutered (M/N) and intact male (M/I) dogs.

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References: