

# SPATIAL CLUSTERING ANALYSIS OF NON-HODGKIN'S LYMPHOMA IN DOGS AND IN HUMANS IN THE CITY OF SAO PAULO, BRAZIL.

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**Background and Aims:** Lymphoma is a malignant clonal expansion of lymphoid cells. This paper aimed to study lymphoma both in humans and in dogs, showing areas of low and high risk in different regions of the city of São Paulo through the mapping Geographic Information System (GIS).

**Methods:** It was collected 556 cases of lymphoma in dogs and 629 cases of lymphoma in humans. Data included were race, gender, age, anatomic localization, stage of lymphoma and the zip code. Simultaneously, 84 control cases and 83 dogs diagnosed with lymphoma were analyzed through an epidemiological questionnaire applied to their owners.

**Results:** The spatial clustering analysis showed a similarity in distribution of lymphomas in both species which showed a higher prevalence of the disease in the areas with higher socio-economic development. The distribution cartographic showed a weak association between slums, sewers and water and the lymphoma clusters. It showed that infectious and parasitic diseases probably could not be correlated with the development of lymphomas, enhancing the cartographic standard for chronic diseases. The strong socio-economic factor of patients and of the owners of dogs with lymphoma may be related to areas with increased urbanization and pollution.

Epidemiological results of the questionnaire showed that dogs with lymphoma over 10 kg which are permanently kept outdoor and near busy street or avenue had a higher risk for development of this disease (OR: 3.1, 95% CI:1.4 – 6.9, p=0,005) suggesting that there is a strong correlation with external environmental factors, like pollution.

**Conclusions:** These findings suggested that environmental factors, such as pollution, may increase the risk of developing canine and human malignant lymphoma. This reinforces the need for further investigations to clarify such evidence and the relationship between environmental contaminants and lymphoma in humans and in dogs.

## References:

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