

Summary

Indoor radon hazard: study and distribution of pet tumours in high-concentration radon area.

Health authorities consider natural radon a leading hazard, especially indoor in home environment. The exposure to radon and its decay products increases the risk of lung cancer. Several epidemiological studies have been performed in human health while veterinary studies are almost limited to murine experimental models. The aim of the present research project was to collect data on pet tumours and to investigate a possible association with areas having an high concentration of natural radon of Asl Roma 6 in the province of Rome. In the first part of the project the completeness of Official Regional Canine Registry (ACIRL) was verified through a survey based on a face to face questionnaire submitted to a sample of general population. The same survey was used also to estimate the feline population. The cat population resulted to be 79918 (95% CI: 71731-94175), the dog population 141159 (95% CI: 140527-141792). The collection of data was promoted through the shipping of animal carcasses and bioptic samples of suspected cases of pet tumours from private practitioners to the “laboratorio di Anatomopatologia” of IZSLT. The data of a private laboratory were collected and integrated in the final database in order to reduce the selection bias of cases and controls. 2068 tumours (1387 malignant) were examined. 684 (465 malignant) from Asl Roma 6 area. Only 40 tumours out of 1387 were related to respiratory system, 11 from Asl Roma 6 area. The annual malignant tumour incidence was 202,0/100.000 in dogs and 80,1/100.000 in cats. In dogs, the most frequent tumours are mammalian carcinoma in females and subcutaneous tissue tumours in males. In cats, the most frequent tumours affects skin and subcutaneous tissues both in males and females. The radon measurement in the private houses (cases and controls) resulted high and in some cases it exceed the threshold level as defined by OMS and European Environment Agency. The association between radon concentration and malignant respiratory tumours was not statistically significant, but the number of cases was very low to make definitive conclusions. The present study allows to evaluate radon exposure of canine and feline population in the area of study and to identify the possible negative effects, as general tumours and the respiratory tumours incidence.

Key words: radon, animal population, sentinel animals, tumours, tumours registry, Canine Registry