Domestic Radon and Childhood Cancer in Denmark

Background: Higher incidence rates of childhood cancer and particularly leukemia have been observed in regions with higher radon levels, but case-control studies have given inconsistent results. We tested the hypothesis that domestic radon exposure increases the risk for childhood cancer. Methods: We identified 2400 incident cases of leukemia, central nervous system tumor, and malignant lymphoma diagnosed in children between 1968 and 1994 in the Danish Cancer Registry. Control children (n = 6697) were selected from the Danish Central Population Registry. Radon levels in residences of children and the cumulated exposure of each child were calculated as the product of exposure level and time, for each address occupied during childhood. Results: Cumulative radon exposure was associated with risk for acute lymphoblastic leukemia (ALL), with rate ratios of 1.21 (95% confidence interval = 0.98-1.49) for levels of 0.26 to 0.89 x 10(3) Bq/m(3)-years and 1.63 (1.05-2.53) for exposure to >0.89 x 10(3) Bq/m(3)-years, when compared with