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Risk increase of cardiovascular diseases and impact of aircraft noise - the Cologne-Bonn Airport Study

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ABSTRACT

Since 1977 several investigators have demonstrated an impact of aircraft noise (AN) on hypertension and/or cardiovascular diseases (CD). A preceding study in the vicinity of Cologne-Bonn International Airport (CBIA) showed an increase of amount of cardiac drugs prescribed with increasing AN. Geo-referenced environmental noise data (aircraft, road, railroad) were linked to hospital discharge diagnoses of 1,020,528 persons living in the vicinity of CBIA insured in 8 German sickness funds (residential addresses geo-referenced) in a case-control design. Study population came to more than 55 % of the total population of the study region (Cologne City and 2 adjacent counties). Confounders were in addition to age environmental noise, prevalence of social welfare recipients of residential quarters and interaction of AN*age. With increasing age risk increase for all CD is decreasing. Increases are larger in women. For night-time (11 p.m.-1 a.m.) AN of 50 dBA and age of 50 the odds ratios are for all CD in men 1.22 (95% CI 1.08-1.39), in women 1.54 (95% CI 1.36-1.75); for acute myocardial infarction in men 1.18 (95% CI 0.90-1.54), in women 1.54 (95% CI 1.10-2.18); for heart failure in men 1.52 (95% CI 1.22-1.88), in women 1.59 (95% CI 1.29-1.95); for stroke in men 1.36 (95% CI 1.00-1.85), in women 1.36 (95% CI 1.00-1.84). Analyses stratified by prevalence of social welfare quartile showed no risk increase in highest quartile, although prevalence of all CD was increasing with prevalence of social welfare recipients. This major study contributes additional evidence linking AN to cardiovascular diseases.