

Peripheral vascular disease prevalence increases exponentially with proximity to roadways in an adult cardiac catheterization cohort.

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Background: Previous epidemiologic studies have suggested that residential proximity to traffic increases risk of cardiovascular diseases (CVD) in major urban areas.

Objectives: We examined the associations between mobile source air pollution and cardiovascular outcomes in a less urban environment

Methods: We utilized a cohort of 2,254 patients with outpatient cardiac catheterization at the Duke University Cardiac Catheterization clinic (CATHGEN), who resided in Durham, Wake, or Orange County North Carolina. We computed the inverse exponential distance to the nearest primary or secondary roadway and assigned one of six traffic exposure zones to each residence. Associations were examined using generalized additive models adjusting for sex, race, and a smooth function of age.

Results: Peripheral vascular disease showed an inverse exponential association with distance to primary or secondary roadway (OR = 1.305 for an interquartile range increase in distance to road, 95% CI 1.15 – 1.58). While a prior myocardial infarction was associated with residence in zone 2 (urbanized area) (OR = 1.63, 95% CI = 1.13 - 2.36), the association did not increase with residence in zone 3 (high signal light density) (OR = 1.49, 95% CI 0.96 – 2.32) and zone 4 (transit routes) (OR = 1.44, 95% CI = 0.96 – 2.16).

Conclusions: Even in less urban environments, peripheral vascular disease is associated with proximity to major roadways. Urban residence is also associated with a prior myocardial infarction, but the risk does not increase with residential proximity to stop-and-go traffic.

This abstract of a proposed presentation does not necessarily represent EPA policy.

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