

Living close to major road may impair kidney function

May 13 2013

Living close to a major road may impair kidney function—itsself a risk factor for heart disease and stroke—and so help contribute to the known impact of air pollution on cardiovascular risk, suggests research published online in the *Journal of Epidemiology and Community Health*.

The authors base their findings on more than 1100 adults who had sustained a stroke between 1999 and 2004 and had been admitted to hospital in the greater Boston area of Massachusetts in the US.

On admission, each patient's [serum creatinine](#) was measured. This is a by-product of muscle metabolism and is filtered out of the body by the kidney, known as the [glomerular filtration rate](#) or GFR. The GFR is therefore an indicator of the health of the kidneys and how well they are working.

Half the patients lived within 1 km of a major road, with the rest living between 1 and 10 km away.

After taking account of influential factors, such as age, sex, race, smoking, underlying conditions, treatment for [heart conditions](#), and neighbourhood affluence, those patients who lived closest to a major road had the lowest GFR.

Those who lived 50 metres away had a GFR that was 3.9 ml/minute/1.73 m² lower than those who lived 1000 metres away. This difference is comparable to a reduction in GFR associated with being 4 years older.

The authors calculate that a reduction in proximity to a major road from 1000 metres to 50 metres may be associated with a 4% higher rate of [cardiovascular death](#) and a 1% increased risk in death from all causes.

"There is growing evidence that living near major roadways contributes to the incidence of vascular disease, and adverse prognosis among patients with prevalent cardiovascular disease," write the authors.

Air pollution caused by traffic is associated with an increased risk of stroke and heart attack, as a result of inflammation, artery narrowing as a result of plaque build-up, and changes to peripheral arteries.

The kidneys are highly susceptible to the build-up of arterial plaque, write the authors: "If causal, these results imply that exposures associated with living near a major roadway contribute to reduced renal function, an important risk factor for cardiovascular events."

More information: [www.jech.bmj.com/lookup/doi/10 ... 116/jech-2012-202307](http://www.jech.bmj.com/lookup/doi/10.1136/jech-2012-202307)

Provided by British Medical Journal

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