Dementia rates falling since leaded petrol ban

Heavy metals, such as lead, have been linked to a higher incidence of dementia, according to new research

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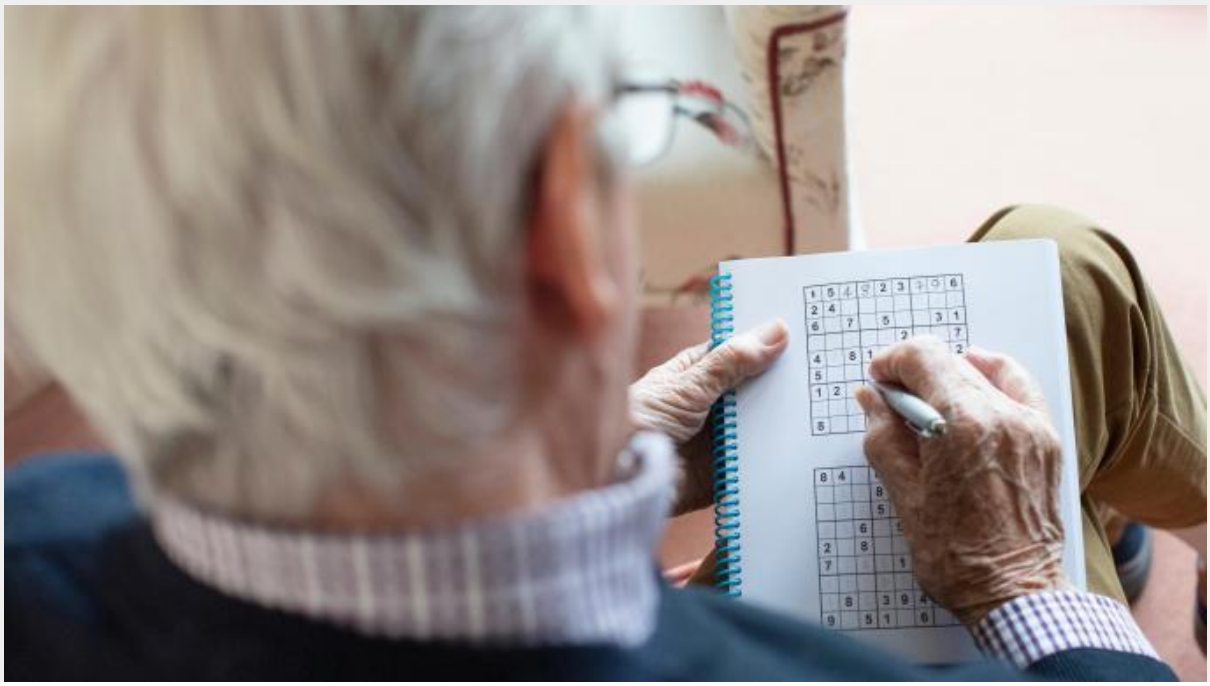

People born between 1926 and 1935 have four times more lead in their bones than those born after 1965 ALAMY

Dementia rates are decreasing and will continue to fall across Europe and North America thanks to the ban on lead in petrol, scientists have suggested.

Due to an expanding and ageing population, the total number of people with dementia has been rising, but a study from Harvard claimed that the dementia rate — the proportion of people who develop the disease — is falling by up to 15 per cent per decade.

A new study has claimed that high dementia rates may have been caused by exposure to lead emitted in car exhaust fumes, suggesting that the gradual switch to unleaded petrol in the 1970s and 1980s, and the ban on lead in petrol about 20 years ago is starting to bring dementia rates down.

Researchers from the University of Toronto in Canada described a form of dementia called limbic-predominant age-related TDP-43 encephalopathy (LATE), similar to Alzheimer's disease. They added that "heavy metals such as lead" have been linked to the disease.Their paper, published in the *Journal of Alzheimer's Disease*, states: "Before leaded gasoline was phased out during the 1970s and 1980s, average blood lead levels were 15 times what they are today. Thus, each successive birth cohort entering old age has had less cumulative life exposure to lead.

“Lifetime exposure can be tracked in the tibia bone, where the half-life of lead is many decades. We hypothesize that lead plays a role in the development of LATE.”

In the UK there are about 850,000 people with dementia.

The researchers said that previous studies have linked lead exposure to cognitive decline and said that excessive exposure to lead can age the brain by up to six years. Lead is a known neurotoxin that can cross the barrier between the blood and the brain, which can cause “neuronal cell death”, the paper states.

Petrol infused with lead was introduced in the 1920s when it was found reduce “knocking”, where pockets of air explode in the wrong part of the engine. In the early 1970s there was 0.84g of lead per litre of petrol. This had fallen to 0.4g by 1986, when the law changed to limit levels to 0.15g per litre.

AutoCar magazine warned in 1989: “Lead is an extremely nasty pollutant — it can cause brain damage, particularly in children.”

Unleaded petrol went on sale in the UK in 1986 and leaded petrol was finally banned under EU law in 2000.

One estimate has placed the half life of lead in the body — the period over which it halves in potency — at 49 years. Compared with those born between 1965 and 1982, those born before 1925 have five times more lead in their bones, those born between 1926 and 1935 have four times more and those born between 1936 and 1945 have three times more, the paper explains.

They said that autopsy studies should be analysed by birth year to look at dementia rates and see if they tally with lead exposure levels.

The paper adds: “If our hypothesis is correct, the prevalence of LATE should be higher in earlier cohorts than in later birth cohorts . . . There should be a downward trend over time in the prevalence of LATE among older adults and this temporal trend should continue for the next five decades until all older adults will have been born after the phase-out of leaded gasoline.

“The prevalence of LATE might also be higher among those who lived in the 1970s and before in inner city areas and near major roads in comparison to those who lived in areas with less traffic-related air pollution.”

The researchers described their theory as “speculative”, adding that other environmental factors, such as the reduction in smoking, could also affect the development of the disease.

ZhiDi Deng, a pharmacy student who co-wrote the article, said: “If lifetime lead exposure is found to be a major contributor to dementia, we can expect continued improvements in the incidence of dementia for many more decades as each succeeding generation has fewer years of exposure to the neurotoxin.”