People who live close to major roads with high levels of traffic pollution may have a greater risk of developing rheumatoid arthritis, according to a recent study. This has possible implications for town planners.

Rheumatoid arthritis is a long-lasting condition that causes pain, swelling and inflammation of the joints in the body. About 1 per cent of the population is affected. There is no known cure, although the symptoms can be treated and development of the disease slowed.

It is thought that genetic factors account for less than 50 per cent of rheumatoid arthritis cases. Previous studies suggest that environmental pollution, especially particle emissions, such as from cigarette smoke or traffic, could contribute to development of the disease.

The researchers used information from the medical records of 90,297 women from the Nurses' Health Study in the USA, to determine the incidence of rheumatoid arthritis. A geographic information system was used to compare the distance the participants lived from a major road, designated A1-A3. A1 roads are primary roads, for example, interstate highways. A2 roads are primary major or non-interstate roads, and A3 are smaller secondary roads, usually with more than two lanes.

The distance of an individual's home from a road was used as an indicator of traffic exposure. The relationship between the occurrence of rheumatoid arthritis with distance from a road was assessed.

Women who lived within 50 metres of a major road (A1-A3) had about a one third (31 per cent) greater risk of rheumatoid arthritis compared with women who lived 200 metres or more away. This increase in risk was after other risk factors, such as age, race, socioeconomic status and cigarette smoking, were taken into account.

For women who lived within 50 metres of a primary road (A1 and A2), the increase in risk of rheumatoid arthritis rose from 31 per cent to 63 per cent. This suggests that women who lived closer to very busy roads were more at risk of developing rheumatoid arthritis than those who did not, and that greater exposure to traffic pollution was associated with an increased risk of rheumatoid arthritis.

The researchers suggest that inhaling vehicle emissions, especially tiny particles, or particulate matter (PM), can cause inflammation in the lungs which can lead to a general inflammatory response in the body, as is thought to similarly occur for some cigarette smokers. This study suggests exposure to traffic pollution could be a newly identified risk factor for the development of rheumatoid arthritis.

The researcher point out that actual pollution levels and traffic intensity were not measured. They suggest further studies are needed to confirm whether fine particulates or other chemicals in traffic pollution are associated with greater risk of developing rheumatoid arthritis.

1. See: http://www.channing.harvard.edu/nhs/index.php/history/


Contact: ekarlson@partners.org

Theme(s): Air pollution, Environment and health