

Childhood brain tumours linked with parents' activities

November 11 2014, by Lizzie Thelwell



"Refuelling and wood heater use both potentially involve exposure to volatile organic compounds, such as benzene, and other substances called polycyclic aromatic hydrocarbons, some of which have been shown to be carcinogenic to humans," Prof Bower says. Credit: mdavidford

An Australia-wide case-control study has found men who refuel their cars more than four times per month or use a closed wood heater before

their child's birth may increase the risk of their offspring developing brain tumours.

The Telethon Kids Institute researchers hypothesised that increased exposure to these activities would be associated with an increased risk of childhood brain tumours (CBT), which was the case for some of the analyses.

"The team did see a positive association when exposures were more frequent, which makes sense," says Professor Carol Bower, a member of the institute's cancer epidemiology project team.

"The results were strongest when men refuelled at least once a week or more, but they saw no association for women refuelling in the 12 months before or during pregnancy.

"The use of closed wood heaters before the child's birth was also associated with an increased risk."

Previous research has examined [occupational exposure](#) to motor exhaust emissions but there has been little investigation into the health effects of non-occupational fuel exposure— especially through direct contact or inhaling vapour.

"Refuelling and wood heater use both potentially involve exposure to [volatile organic compounds](#), such as benzene, and other substances called [polycyclic aromatic hydrocarbons](#), some of which have been shown to be carcinogenic to humans," Prof Bower says.

"Exposure to the parents of such substances before or during birth could potentially increase the risk of damage to the germ cells [egg/sperm] and make cancer in children more likely."

The scientists recruited children under 15 years of age with [brain tumours](#) through paediatric oncology centres around Australia and investigated the genetic, dietary and [environmental risk factors](#) of CBT between 2005 and 2010.

Through this study, researchers analysed the responses given by both parents in a questionnaire about their exposure to wood heaters and refuelling in key periods relative to the child's birth.

They examined data for 306 case and 950 control families.

The researchers stress larger studies need to confirm their findings.

"The results of this study show associations, which doesn't necessarily prove that the exposure caused the outcome," Prof Bower says.

"Also, the team did not measure fathers' refuelling directly—information was sourced via questionnaires which is dependent on accurate recall."

The researchers plan to further explore [exposure](#) to volatile organics and PAHs to determine if there is another factor not tested for in the study.

Provided by Science Network WA

Citation: Childhood brain tumours linked with parents' activities (2014, November 11) retrieved 23 April 2024 from

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