

New study aims to reduce risk of childhood leukemia

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A study led by Dr Marcus Cooke at the University of Leicester and funded by World Cancer Research Fund (WCRF) UK is looking at whether consuming caffeine during pregnancy might affect the unborn baby's risk of developing leukaemia in childhood.

Dr Cooke sees the study as a unique opportunity to determine the sources of chromosomal alterations during pregnancy, with the ultimate aim of reducing the risk of childhood leukaemias.

Leukaemia is a cancer of the bone marrow and white blood cells. It can affect people of all ages and around 7,000 cases are diagnosed each year in the UK. While it is the most common type of childhood cancer, accounting for 35 per cent of cases, it is still rare. Only 1 in 10 of leukaemia patients are children, accounting for 500 child diagnoses a year in the UK.

"We want to find out whether consuming caffeine could lead to the sort of DNA changes in the baby that are linked to risk of leukaemia," said Dr Cooke. "This is an important area of research because it is vital that mothers are given the best advice possible."

While childhood leukaemia could be initiated by DNA alterations in the unborn child, it is thought that leukaemia would only develop if there was another secondary trigger. There is currently no single proven cause of childhood leukaemia, though exposure to radiation and/or a rare response to a common infection are thought likely to play a part.

Although there are currently no convincing links between caffeine and cancer risks, previous studies have found a link between alterations to DNA, which are sometimes found in newborn babies, to an increased risk of leukaemia. Caffeine has been shown to cause these kinds of changes to DNA.

Scientists know caffeine can pass back and forth across the placenta, meaning the unborn baby will come in contact with caffeine consumed by the mother. Dr Cooke and his team want to find out what impact this can have on the unborn baby.

Their research will involve working with a group of 1,340 pregnant women. After birth, a blood sample is routinely taken from each newborn baby's heel. It is these samples that will then be tested for DNA changes. By comparing any DNA changes to the levels of caffeine the mother consumed, the team will try to find out if the two are linked.

If a link is discovered, further research would be needed to see whether this meant babies with these DNA changes would be more likely to develop leukaemia, and to examine evidence of exposure to other DNA damaging agents. The study will also collect other lifestyle and dietary data to see if there are other factors which might increase the risk.

Dr. Marcus S. Cooke, of the Leicester Department of Cancer Studies, and the Department of Genetics, will be working with Drs. Roger Godschalk and Sahar Barjesteh van Waalwijk van Doorn-Khosrovani from the Department of Health Risk Analysis and Toxicology, Maastricht University.

This study is not the first research into the link between cancer risk and caffeine. In the past, research has suggested a possible link with cancers of the pancreas and kidney, but after examining all the research, the WCRF/AICR Expert Report found that a substantial effect on risk was

unlikely.

The Food Standards Agency advises pregnant women not to consume more than 200mg of caffeine a day - which is equivalent to two cups of coffee - and WCRF UK supports this advice. Evidence suggests drinking a lot of caffeine during pregnancy could be a factor in low birth weight, which has been linked to future risk of heart disease and diabetes.

Source: University of Leicester

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