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## Australian study explores possible link between child allergies and antibiotics given during childbirth

A possible link between children's allergies such as asthma, food intolerance and eczema, and antibiotics given to women during childbirth is the focus of a new Australian study.

Royal Brisbane and Women's Hospital (RBWH) specialist anaesthetist Associate Professor Victoria Eley is leading a pilot control study to examine if the antibiotics administered during childbirth make children more susceptible to allergies.

"Over the last 20 or so years the use of antibiotics in pregnancy has increased – regardless of whether it is a caesarean or natural delivery. Antibiotics are administered for particular conditions and there are guidelines for these.

"We know that more than 50 per cent of women are given antibiotics during childbirth but there is growing concern about the impact they have on a baby's developing immune system," Associate Professor Eley explained.

"Antibiotics are being used more frequently in childbirth than in the past for certain conditions such as ruptured membranes, fever during labour and to prevent infection after caesarean section. While we know that antibiotics reduce infection in mothers, there is now some evidence that those early antibiotics affect the bacteria in the baby's gut and that might influence the way a baby's immune system develops."

The study coincides with the launch of the Australian and New Zealand College of Anaesthetists' (ANZCA) 2021 National Anaesthesia Day on 18 October with this year's theme "Anaesthesia and having a baby."

Anaesthetists administer antibiotics during childbirth to prevent infection. Local and international guidelines recommend that those undergoing a caesarean now be given antibiotics before the birth.

"It's to protect both against infection in the mother's wound and also the womb. But we have to think about the effects on the baby as well." Associate Professor Eley explained.

International studies have found that the method used to deliver a baby, whether through a vaginal birth or caesarean, can influence conditions such as asthma in children.

"What is difficult to establish is whether the reason is because you were delivered by caesarean section, for example, or because your mother was exposed to antibiotics," Associate Professor Eley explained.

The first stage of the new Australian study will focus on babies born by caesarean section.

“Antibiotics have a really important role to play in healthcare but what we are trying to determine is whether we can be more careful about who actually needs antibiotics and treat any infection that develops but continue to use antibiotics routinely for those who are at high risk of infection.”

Fifty patients will be recruited in the trial with half of those who did not receive antibiotics to be examined as a control group. Samples of breast milk, blood and baby “poo” will be collected to compare between the two groups.

“We’re hoping the results of this study will highlight the importance of more targeted use of antibiotics during childbirth,” Associate Professor Eley said.

“We know that some women such as those with diabetes or who are immuno compromised are more likely to be at risk of getting an infection so this group of women would continue to receive antibiotics. But we can probably avoid it in very low risk people who are healthy and have no other medical problems and only give them antibiotics if needed.”

The RBWH research team is hoping the pilot trial, which is funded by the Children’s Hospital Foundation and the Metro North Hospital and Health Service, will be the first step towards a larger study.

ANZCA is one of the largest specialist medical colleges in Australia and New Zealand, and the region's foremost authority on anaesthesia, pain medicine and perioperative medicine. It is the professional membership organisation for more than 7500 specialist anaesthetists and 500 specialist pain medicine physicians.

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