

Bacteria passed on in the womb is linked to premature birth and breathing difficulties

13 September 2018

Babies born very prematurely are more likely to harbour Ureaplasma bacteria, according to new research to be presented on Sunday at the European Respiratory Society International Congress.

Ureaplasma [bacteria](#) are often present in the birth canal but they are unusually small and difficult to detect. The bacteria can be passed on to babies during pregnancy or birth, and can cause a respiratory infection in newborns.

The new research shows that very premature babies who have Ureaplasma bacteria in the lungs at birth are more likely to develop respiratory problems during their first year of life and less likely to survive.

It also shows that a widely-available antibiotic that is effective against Ureaplasma in the lab can be given safely to premature babies and so could have a role in the [treatment](#) of premature babies in the future.

The work was presented by Rose Marie Viscardi MD, Professor of Paediatrics at the University of Maryland School of Medicine, Baltimore. She says: "Research has already suggested a link between Ureaplasma infection, premature birth and a serious lung disease called bronchopulmonary dysplasia. Prematurely born babies with this condition may have long-term breathing problems such as asthma and they may require oxygen at home, respiratory medications, more doctor visits and they're more likely to be re-admitted to hospital.

"I have been studying the association between Ureaplasma respiratory infection and bronchopulmonary dysplasia for more than 20 years. A key question is whether this bacteria is causing ill health in newborns and, if so, whether eliminating the bacteria improves outcomes for these very small babies."

Professor Viscardi studied a group of 121 babies born between 24 and 28 months' gestation (around six months). Half of the babies were treated with a three-day course of azithromycin (20 mg per kg of the baby's weight per day), while the other half were given a placebo. All were tested for the presence of Ureaplasma bacteria in their noses and windpipes before and after treatment, and followed up for their first year of life.

The researchers found that 36% of all the babies in the study were Ureaplasma-positive, but this rose to 45% among the most premature babies born between 24 and 26 weeks' gestation.

Compared to babies without the infection or those who only had the bacteria detected in their nose, these very premature babies who had Ureaplasma in their windpipe at birth were less likely to survive (71% compared to 90% and 100%), and they were more likely to develop bronchopulmonary dysplasia and other [respiratory problems](#) during their first year of life (67% compared to 50% and 21%).

The study suggests that the three-day course of azithromycin treatment was safe for these premature babies and effective at eradicating Ureaplasma bacteria.

The researchers caution that this is a small study, but say the results also show that the likelihood of death or severe respiratory disease one year after birth was lower in babies treated with azithromycin compared to babies who were Ureaplasma-positive and treated with placebo (33% compared to 86%).

Professor Viscardi added: "We believe that Ureaplasma bacteria can interact with a mother's and baby's immune defences leading to a chronic infection with persistent inflammation. This can then lead to premature labour or early rupture of the membranes. In a premature baby, inflammation alters the development of the immature lung, contributing to the development of

bronchopulmonary dysplasia.

Provided by European Lung Foundation

"This study shows that *Ureaplasma* respiratory infection is very common in extremely premature infants and clinicians should consider testing for this infection in those newborns who are at risk. It also suggests that the three-day course of azithromycin is safe and effective. However, there is not yet enough evidence to recommend routine treatment of *Ureaplasma* respiratory infection and we are planning a larger clinical trial to address this question."

Professor Viscardi and her team will continue to follow the babies in this study and hope to conduct a larger trial to show whether azithromycin treatment improves outcomes in the longer-term.

Professor Tobias Welte of Hannover University in Germany is President-Elect of the European Respiratory Society and was not involved in the study. He said: "There is currently no consensus among neonatal specialists on whether to test for *Ureaplasma*, or whether to give treatment if the bacteria are detected. *Ureaplasma* are not picked up by routine tests for infections and require specialised lab tests. These bacteria are not considered dangerous in healthy people so many clinicians do not think treatment is necessary.

"However, this study suggests that in very premature [babies](#) this [infection](#) is linked with [bronchopulmonary dysplasia](#) and a higher risk of death. Larger clinical trials are needed to clarify the importance of detecting *Ureaplasma* in [premature babies](#) and to show whether treatment with antibiotics is beneficial. Until then, antibiotic treatment should not be used routinely."

More information: Abstract no: OA301, "Azithromycin (AZM) reduces death or severe respiratory morbidity at 12 month adjusted age (AA) in *Ureaplasma*-positive intubated preterms.", R. Viscardi; Cell and molecular biology, General respiratory patient care, Physiology, Respiratory intensive care, 08:45 hrs CEST, Sunday 16 September, Paris Expo Porte de Versailles.

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