

Old drug could have new use helping sick premature babies

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Researchers from The University of Western Australia, King Edward Memorial Hospital and Curtin University are investigating whether an old drug could be used to help very sick premature babies.

In a study published today in the *British Journal of Clinical Pharmacology* the researchers examine the use of a [drug](#) called pentoxifylline in pre-term infants. The drug, also known as Trental, was developed in the 1970s and is currently used to treat adults with poor circulation. It has multiple positive effects including improving blood flow and reducing inflammation.

UWA Clinical Senior Lecturer Dr. Sam Salman, from UWA's Medical School, said previous small studies suggested the drug could improve survival and disability when added to the treatment of [premature babies](#) with serious infections, but little was known about the right dose to use.

"Although we have a good idea on the dose we need to treat adults there is little information to help us understand the best dose to give premature babies," Dr. Salman said.

Working with Associate Professor Tobias Strunk, a neonatologist at the Neonatal Intensive Care Unit (NICU) at King Edward Memorial Hospital (KEMH), the research team is looking to solve that problem.

The study examined the use of pentoxifylline in 26 premature babies born between 23 and 30 weeks and weighing between about 500g and 2kg who were being treated for serious infections.

"Weight and organ function can be very different between these babies and is constantly changing, so we needed to know how these factors affect the [concentration](#) of the drug," Dr. Salman said.

The study was able to show that not only did size impact the concentrations of the drug but that for every additional week of life there was a 30 per cent increase in [organ function](#) that metabolised the drug, resulting in lower concentrations of the drug.

"We found that there was a sixfold difference in concentration of the drug despite dosing based on weight, suggesting that the current weight-based dosing may be improved by accounting for the age of each individual baby," Dr. Salman said.

The study also found that the drug did not have an adverse effect on other medications the babies needed. The findings will support an ongoing international study of 1,800 babies in NICU, led by researchers at UWA and KEMH, which aims to prove the benefit of the drug in critically ill premature babies.

More information: Sam Salman et al. Effects of maturation and size on population pharmacokinetics of pentoxifylline and its metabolites in very preterm infants with suspected late-onset sepsis or necrotising enterocolitis: a pilot study incorporating clinical outcomes, *British Journal of Clinical Pharmacology* (2018). DOI: [10.1111/bcp.13775](https://doi.org/10.1111/bcp.13775)

Provided by University of Western Australia

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