Pharmacokinetics of ticarcillin-clavulanate in premature infants

WHY WAS THIS STUDY NEEDED?

Ticarcillin-clavulanate is an antibiotic that can be used to treat many infections that occur in premature infants. However, there is little information on the pharmacokinetics (how the drug is processed) in premature infants' bodies. This information is necessary for health care providers to prescribe the safest, most effective dose of ticarcillin-clavulanate when treating infections in premature infants.

WHAT KIND OF STUDY WAS THIS?

This clinical research study by the Pediatric Trials Network (PTN) enrolled 15 premature infants across two health centers in the United States. All infants were believed to have a serious bacterial infection and received ticarcillin-clavulanate in addition to other antibiotics prescribed by their doctors. The study examined how these premature infants processed ticarcillin-clavulanate.

WHAT HAPPENED DURING THE STUDY?

All of the participating infants were given the same dosage of ticarcillin-clavulanate, but the number of times per day the infants received the medicine was based on their age. Samples of the infants' blood were used to determine how much ticarcillin-clavulanate remained in their body over time.

WHAT WERE THE STUDY RESULTS?

The older an infant was, the more quickly ticarcillin-clavulanate was cleared from their blood. This is because ticarcillin-clavulanate is processed through the kidneys, and more mature kidneys work faster at getting rid of the medicine through the urine. The infant's weight was also an important factor in how much ticarcillin-clavulanate remained in the body over time.

WHAT HAPPENS NEXT?

Researchers recommend that prescribers dose ticarcillin-clavulanate based on the age of the premature infant being treated. Additionally, they recommend that more frequent doses should be used when treating stronger infections.

WHERE CAN I LEARN MORE ABOUT THESE CLINICAL TRIALS?

A summary of the results for this trial, as well as related publications, can be found at pediatrictrials.org.

WHO CONDUCTED THE STUDIES?

The study was conducted by the Pediatric Trials Network (PTN), a group of more than 100 research sites around the world that are working to find the safest and most effective ways to use medicines and devices for infants and children. Children aren't just little adults. Their bodies are growing and changing, meaning that they process medicines and react to devices differently than adults. The PTN works to make sure doctors and families have
the information they need to give children the best care.

The trial was made possible with support from the Eunice Kennedy Shriver National Institute of Child Health and Human Development.

** This summary was completed in February 2024. Newer information since this summary was written may now exist. This summary includes only results from one PTN study. Other studies may find different results.*

PEDIATRIC TRIALS NETWORK
Making drugs safer & more effective for use in the youngest patients