Effect of a Guideline for Stopping Antibiotics after Birth in Preterm Infants

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AIM
To reduce the rate of continuing antibiotics for more than 72 hours in infants born at less than 32 weeks EGA without positive cultures to less than 20% within 2 years.

SETTING
This project occurred in a level IV referral NICU. Studies have shown that preterm infants exposed to prolonged courses of antibiotics (greater than 72 hours) after birth are at increased risk of developing necrotizing enterocolitis (NEC) and late onset sepsis (LOS). Retrospective chart review of this population in the Riley NICU showed that only 3% of infants born at less than 32 weeks EGA had culture proven sepsis, but 30% were on antibiotics for more than 72 hours.

MECHANISMS
Our Clinical Guidelines Group reviewed the evidence regarding rate of infection, sensitivities of initial blood culture at birth, sensitivity and specificity of CBC and CRP in the first 48 hours after birth. We then developed a clinical guideline for treatment of suspected early onset sepsis in this population. A flow chart of the process was developed to help illustrate the guidelines and is presented in Figure 1.

We provided education of the nursing staff, NNP’s, fellows, and faculty. The guidelines were made available on a website in both a full form with the interpretation of the evidence and the references, and a short form with a synopsis of the recommendations and the flow sheet. In addition, the order sentences of the computerized physician order entry system were modified to reflect the guidelines.

RESULTS OF ANTIBIOTIC USE

MEASURES
All data were retrieved from Neodata, a database used for physician documentation as well as billing. For measurement of our primary aim, the number of infants born at less than 32 weeks without culture proven early onset sepsis and treated with ampicillin for more than 72 hours was divided by the number of infants less than 32 weeks admitted within 2 days of birth, without culture proven sepsis who survived greater than 72 hours. In addition we looked at the outcomes incidence of NEC and incidence of LOS. As a balancing measure, we looked at the number of times an infant had a positive culture between 3 and 10 days of age in infants whose antibiotics were stopped prior to 72 hours of age.

CONCLUSIONS
Implementation of an evidence based guideline to decrease prolonged use of antibiotics for clinical sepsis in infants less than 32 weeks EGA decreased the incidence of antibiotic use for greater 72 hours, without evidence of harm. The incidence of LOS also decreased after the guideline.

REFERENCES