A strategy for reduction of antibiotic use in new patients admitted to a neonatal intensive care unit—experience in Southern Taiwan

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There is a high rate of antibiotics use in sick newborns in the Neonatal Intensive Care Unit (NICU). To reduce unnecessary use of and provide appropriate guidance for administration of antibiotics, we have developed a “Neonatal Bacterial Infections Screening Score” (NBISS) for each new patient admitted to the NICU of Kaohsiung Medical University Hospital. The NBISS was designed based on maternal risk factors, clinical presentations, and laboratory data. The total score for each new patient was calculated at the time of admission. The first period of study was an observational survey. Receiver-operating characteristic curve was used to determine the best cut-off value of NBISS for diagnosis of bacterial infection to guide antibiotics used in the second period of study. Of 250 neonates admitted to the NICU, 237 (94.8%) received antibiotics during the first period of study. The items including C-reactive protein, the presentation of a bulging fontanelle, pus from the ear canal, redness around the umbilicus, reduced movement, and not being able to feed were weighted to make significant difference between the bacterial infection and non-bacterial infection groups (p=0.015). Weighted scores higher than 8 points had best diagnostic accuracy for indicating bacterial infection for new neonatal patients needing NICU care. After the introduction of NBISS for predicting bacterial infection in new patients admitted to NICU, the rate of antibiotic use significantly decreased, from 94.8% to 60.3%, between the two periods. Through this simple screening strategy without increased cost for lab exam, we achieved a clinical reduction in unnecessary antibiotics use.

Biography
Hsiu-Lin Chen completed Master of Medical Science in 2007 from Kaohsiung Medical University, Graduate of Medicine. She is the attending physician in division of neonatology, the department of pediatrics, Kaohsiung Medical University Hospital and also the Associate Professor in Department of Respiratory Therapy, School of Medicine, Kaohsiung Medical University. She has published more than 30 papers focusing on neonatal intensive care and development of premature infants in reputed journals.

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