

Factors affecting survival, disability of extremely premature infants identified

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Gestational age has long been the factor most commonly used to predict whether an extremely low-birth-weight infant survives and thrives, but four additional factors that can help predict a preemie's outcome have been identified by the National Institutes of Health Neonatal Research Network, of which Yale is a member.

Birth weight, gender, whether the baby is a twin and whether the mother was given antenatal steroid medication to aid the baby's lung development are all factors that affect survivability and risk of disability, according to an article in the New England Journal of Medicine by a consortium of researchers in the Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD) Neonatal Research Network. The 19-center network includes Yale School of Medicine and Yale-New Haven Hospital.

The study was a statistical analysis of the health records of 4,446 children born between 22 and 25 weeks of pregnancy and weighing between 401-1,000 grams (about one to two pounds) at birth.

Researchers examined which factors, aside from gestational age, influenced the outcomes for extremely low-birth-weight infants. They used a statistical tool called an outcome estimator to assess survival. The researchers found that an infant's chances of survival without disability were enhanced if they were of older gestational age, their mothers had been given antenatal steroids, they were female, they were singletons rather than part of a multiple birth and they had higher birth weight.

“There is a grey zone of survivability at different gestational ages, and it is impossible to predict the outcome with perfect accuracy, but these new statistical tools are a tremendous aid to us as physicians, particularly when counseling parents faced with agonizing decisions for their extreme preemies,” said Mark Mercurio, M.D., associate professor of pediatrics at Yale School of Medicine, attending neonatologist at Yale-New Haven Hospital and chair of the Pediatric Ethics Committee. “We are able to give parents a better idea of what the child’s chances of survival are, and in many cases we defer to the judgment of informed parents.”

Mercurio said that in addition to predicting survivability, the factors also help paint a clearer picture of the chances of disability. Developmental problems commonly affecting extremely premature infants include cerebral palsy, mental impairment, vision impairment and hearing loss. The team used standardized measures of mental development, vision and hearing to assess the health status of surviving infants when they were 18 to 22 months. Forty-nine percent of the infants in the study had died, 21 percent survived without disability, and the remainder experienced some disability.

Source: Yale University

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