Perinatal policy in cases of extreme prematurity; an investigation into the implementation of the guidelines

This supplementary information is presented as submitted by the corresponding author. It has not been copy-edited by NTvG.

Objective

In 2010 the Dutch Association of Paediatrics (NVK) and the Dutch Society of Obstetrics and Gynaecology (NVOG) introduced an evidence-based guideline on spontaneous extremely preterm birth, recommending active perinatal and neonatal management from a gestational age of 24 0/7 weeks onwards, which is one week earlier than in the previous consensus statement. Although evidence-based data support active management of deliveries occurring at 24 weeks of gestation, decisions to start, withhold or withdraw treatment denote a difficult challenge to obstetricians and neonatologists. Knowledge of reliable mortality and morbidity rates is of utmost importance for perinatal and neonatal decision-making. The purpose of this national retrospective cohort study was to evaluate the implementation of the recommendations in this guideline and outcome of mothers and infants covered by this consensus.

Design

Multicentre retrospective cohort study.

Methods

The study population included all mothers with threatened preterm labor at a gestational age between 23 5/7 weeks and 25 6/7 weeks, and their extremely preterm infants in the perinatal centers in the Netherlands during a 1-year period (1 October 2010 to 1 October 2011). All ten perinatal care centers in the Netherlands participated in the study. Antenatal and perinatal characteristics included gestational age (GA), antenatal steroid administration, tocolysis, birth weight, incidence of caesarean section, actuarial survival, major neonatal morbidities and
The primary outcome was survival to discharge of extremely preterm infants. The secondary outcome was short-term neonatal morbidity, i.e., incidence of bronchopulmonary dysplasias (BPD), retinopathy of prematurity ≥ grade 3 using international criteria (ROP), intraventricular haemorrhage ≥ grade 3 using international criteria or periventricular leucomalacia (IVH), necrotising enterocolitis any grade (NEC) and surgical closure of a patent ductus arteriosus.

**Results**

185 of 192 (96%) infants were born alive. Active management was started in consent with parents in 93% of infants. Of live-born infants, 92% were admitted to neonatal intensive care. Survival rates for live born infants at 23, 24 and 25 weeks of gestation were 29%, 43% (95% confidence interval 33-55%) and 61% (51-70) respectively. Survival rates for infants admitted to the NICU were 46% (35-58) for children born at 24 weeks of gestation and 65% (55-74) for children born at 25 weeks gestation.

Median birth weight was 683 grams at 24 weeks gestation, and 780 grams at 24 weeks gestation. 55% of the infants were boys.

Among the survivors, 79% of the infants born at 24 weeks and 71% of the infants born at 25 weeks of gestation had one or more major neonatal morbidities. BPD occurred in 64% (95% confidence interval 42-77%) of infants born at 24 weeks GA, and in 44% (31-57) of infants born at 25 weeks GA. ROP occurred in 27% (14-46) of infants born at 24 weeks GA, and in 13% (6-24) of infants born at 25 weeks GA. IVH occurred in 3% (0-18) of infants born at 24 weeks GA, and in 6% (2-16) of infants born at 25 weeks GA. NEC occurred in 18% (8-36) of infants born at 24 weeks GA, and in 15% (7-26) of infants born at 25 weeks GA. Surgical closure of a patent ductus arteriosus was necessary in 42% (25-61) of infants born at 24 weeks GA, and in 19% (11-32) of infants born at 25 weeks GA.

In 89% of the cases in which the infant died, decisions in consensus with the parents to withhold or restrict further intensive care treatment that was not considered in the best interest of the child due to dismal prognosis played a role. This may have influenced the number of survivors with severe intraventricular hemorrhage, which seems lower than the numbers presented in other studies.

**Conclusion**

In the first year since introduction of the guideline, survival of lifeborn infants at 24 weeks increased with 34% to 43%. The recommendations in the guideline were implemented into clinical practice swiftly. Long term health and development outcomes of these extremely preterm infants, which are of utmost importance for counseling of parents and for evaluation of our practice are still unknown.