Abstract

Background

The continuing challenge of neonatal mortality in very low birth weight (VLBW) neonates in South African hospitals highlights the need to better understand the causes of these deaths as well as their associated modifiable factors.

Objectives

1. Determine the causes of death and factors that contribute to death in VLBW neonates at Klerksdorp Hospital (KH)
2. Determine key modifiable factors to improve the survival of VLBW neonates at KH.

Methods

Retrospective, descriptive study based on the review of 183 patient records (100 who survived and 83 who died) between January 2015 to December 2016. The study population is from the neonatal unit at a secondary hospital in the North-west province of South Africa. The unit consists of eight beds with ventilatory support. Fifty-five Perinatal Problem Identification Program (PPIP) forms were audited to determine causes of death and associated modifiable factors. Logistic regression analysis was used to determine predictors of death.

Results

The most common causes of death were 1) sepsis (24%), 2) extreme multiorgan immaturity (20%) and with the most vulnerable neonates born between 26 and 32weeks' gestation. An increase in birthweight is shown to incur protection against death (OR 0.993, CI 0.989-0.996, p = 0.000). Key predictors of death are metabolic acidosis during the course of their NICU admission (OR 17.785, CI 4.711-67.145, p = 0.000) and hypotension-requiring-inotropes (OR 26.074, CI 5.403-125.827, p = 0.000) secondary to septic shock. Critical modifiable factors include preventing nosocomial sepsis (18%), timely initiation of antenatal care (12%) and improving timeous health seeking behaviour (10%), administration of antenatal steroids (6%) and availability of adequately trained medical personnel (6%).

Conclusion

Sepsis is the leading cause of death in very low birth weight neonates. Its complications in the form of metabolic acidosis and septic shock requiring inotropic support are key predictors

of death. Seventy seven percent the deaths occurred in the first week of life, highlighting a vital window for intervention. Key modifiable factors pertain to medical and patient factors. Barriers that may preclude this lie in the poor socio-economic setting of the population that is mostly peri urban with constrained resources.