



ORIGINAL ARTICLE

Mortality in the first 24h of very low birth weight preterm infants in the Northeast of Brazil



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KEYWORDS

Preterm newborn;
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Abstract

Objective: To evaluate factors associated with neonatal death within 24 hours after birth in very low birth weight preterm newborns.

Methods: Prospective cohort of live births with gestational age of 23^{0/7}–31^{6/7} weeks, birth weight of 500–1499g without malformations, in 19 public maternity hospitals in nine capitals in northeastern Brazil from July to December 2007. The 19 hospitals were assessed in relation to physical resources, equipment, human resources and aiming at quality in care initiatives. Hospital, maternal and neonatal characteristics, neonatal morbidity, neonatal procedures and interventions were compared between preterm newborns that died or survived up to 24 hours of life. The variables associated with death within 24 hours after birth were determined by logistic regression.

Results: Of the 627 newborns enrolled in the study, 179 (29%) died within 168 hours after birth, of which 59 (33%) up to 24 hours and 97 (54%) up to 48 hours after birth. The variables associated with death <24h were: weight <1000g (2.94; 1.32–6.53), 5th minute Apgar <7 (7.17; 3.46–14.88), male gender (2.99; 1.39–6.47). A better hospital structure was a protective factor for early neonatal death (odds ratio: 0.34; 95% confidence interval: 0.17–0.71).

Conclusions: The high neonatal mortality on the first day of life in capital cities of Northeast Brazil is associated with biological variables such as weight and gender of the newborn, as well as low vitality at birth and a worse infrastructure of the hospital where the birth occurred.

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PALAVRAS-CHAVE

Recém-nascido
pré-termo;
Recém-nascido de
muito baixo peso;
Mortalidade
neonatal;
Mortalidade neonatal
precoce

Mortalidade com 24 horas de vida de recém-nascidos pré-termo de muito baixo peso da Região Nordeste do Brasil

Resumo

Objetivo: Avaliar os fatores associados ao óbito neonatal até 24 horas após o nascimento de recém-nascidos pré-termo de muito baixo peso.

Métodos: Coorte prospectiva dos nascidos vivos com idade gestacional de 23^{0/7}–31^{6/7} semanas, peso ao nascer de 500–1.499g sem malformações em 19 maternidades públicas de nove capitais na Região Nordeste do Brasil de julho a dezembro de 2007. Os 19 hospitais foram avaliados com relação aos recursos físicos, equipamentos, recursos humanos e iniciativas de busca de qualidade no atendimento. As características hospitalares, maternas e neonatais, a morbidade neonatal, os procedimentos e as intervenções neonatais foram comparados entre os recém-nascidos pré-termo que morreram ou sobreviveram até 24 horas. As variáveis associadas ao óbito até 24 horas após o nascimento foram determinadas por regressão logística.

Resultados: Dos 627 recém-nascidos incluídos no estudo, 179 (29%) morreram até 168 horas de vida, dos quais 59 (33%) até 24 horas e 97 (54%) até 48 horas. As variáveis associadas ao óbito <24h foram: peso <1.000g (2,94; 1,32–6,53), Apgar 5º minuto <7 (7,17; 3,46–14,88), sexo masculino (2,99; 1,39–6,47). A melhor estrutura hospitalar foi fator de proteção para o óbito neonatal precoce (*Odds Ratio* 0,34; Intervalo de Confiança 95% 0,17–0,71).

Conclusões: A elevada mortalidade neonatal no primeiro dia de vida nas capitais do Nordeste brasileiro associa-se a variáveis biológicas, como o peso e o sexo do recém-nascido, assim como à baixa vitalidade ao nascer e à pior infraestrutura do hospital no qual o parto ocorreu.

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Introduction

Neonatal mortality has acquired increasing importance as the most significant cause of infant mortality. Of all neonatal deaths, 3/4 happen in the first week of life. The first day of life has the highest risk of death and accounts for 25–45% of all deaths.¹

The neonatal mortality rate remains high in Brazil; it was of 10:1000 live births in 2011, which is 2.5 times higher than that in the United States and Canada and about 10 times higher than that of Japan in the same year.² Of these deaths, in Brazil, 26% happen on the first day of life—values underestimated due to sparse data.³ In the Northeast region, early neonatal mortality rate related to deaths from birth up to six days old is twice higher than that of the South Region.³ The high number of deaths in the first week of life in Brazil, more concentrated on the first day, is related to the care provided to pregnant women and newborns during the antepartum, intrapartum, and postpartum period. Actions aimed at improving such assistance have been recommended to reduce the early neonatal deaths.⁴

In recent years, the prevalence of preterm births in Brazil is growing, first due to the increased use of assisted reproduction techniques, and second due to the quality of prenatal care and significant increase in the frequency of early terminations of pregnancy by surgical deliveries.⁵ This finding is of concern because prematurity remains one of the leading causes of death in the neonatal period and its increased frequency has nullified the improvement seen in the survival of low birth weight newborns of with improved neonatal care.⁵

In addition to the inequalities in the international and regional scenario, there are differences in neonatal mortality in different health institutions. The causes of the differences are not clear, even after adjusting for patient characteristics. Hospital care plays a key role in mortality variation found between the various centers. This fact is of importance, as the majority of deliveries in Brazil take place in health institutions.⁶ It is suggested that health-care practices explain the differences in clinical outcome of newborns, particularly preterm neonates; however, it is difficult to identify the combination of practices considered potentially better to make an impact in reducing neonatal mortality.⁷ The identification of specific gaps in quality of care is a starting point and can support more effective interventions in reducing neonatal mortality.⁸

In this context, the aim of this study was to evaluate factors associated with neonatal death in the first 24 h of very low birth weight preterm infants born in public hospitals of capital cities of Northeast Brazil.

Method

Hospital-based prospective cohort of live births with gestational age of 23^{0/7} to 31^{6/7} weeks and weighing ≥ 500 and <1500g, born in 19 public reference hospitals in the capitals of the nine Northeastern states from July to December of 2007. Patients with major congenital malformations, transferred from other institutions, and those who died in the delivery room were excluded. The study used the database of the North-Northeast Perinatal Health Network

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