



ORIGINAL ARTICLE

Risks factors associated with intra-partum foetal mortality in pre-term infants^{☆,☆☆}

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KEYWORDS

Extreme prematurity;
Foetal mortality;
Risk factors

Abstract

Introduction: Pre-term delivery is one of the leading causes of foetal and perinatal mortality. However, perinatal risk factors associated with intra-partum foetal death in preterm deliveries have not been well studied.

Objective: To analyse foetal mortality and perinatal risk factors associated with intra-partum foetal mortality in pregnancies of less than 32 weeks gestational age.

Material and methods: The study included all preterm deliveries between 22 and 31 +1 weeks gestational age (WGA), born in a tertiary-referral hospital, over a period of 7 years (2008–2014). A logistic regression model was used to identify perinatal risk factors associated with intra-partum foetal mortality (foetal malformations and chromosomal abnormalities were excluded).

Results: During the study period, the overall foetal mortality was 63.1% (106/168) (≥ 22 weeks of gestation) and occurred in pregnancies of less than 32 WGA. A total of 882 deliveries between 22 and 31 +6 weeks of gestation were included for analysis. The rate of foetal mortality was 11.3% (100/882). The rate of intra-partum foetal death was 2.6% (23/882), with 78.2% (18/23) of these cases occurring in hospitalised pregnancies. It was found that Assisted Reproductive Techniques, abnormal foetal ultrasound, no administration of antenatal steroids, lower gestational age, and small for gestational age, were independent risk factors associated with intra-partum foetal mortality.

Conclusion: This study showed that there is a significant percentage intra-partum foetal mortality in infants between 22 and 31 +6 WGA. The analysis of intrapartum mortality and risk factors associated with this mortality is of clinical and epidemiological interest to optimise perinatal care and improve survival of preterm infants.

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PALABRAS CLAVE

Prematuridad;
Mortalidad fetal;
Factores de riesgo

Factores de riesgo asociados a mortalidad fetal intraparto en recién nacidos pretérmino

Resumen

Introducción: El parto prematuro es una de las principales causas de mortalidad perinatal y fetal. Sin embargo, los factores de riesgo perinatales asociados a mortalidad fetal intraparto en partos pretérmino no han sido bien analizados.

Objetivo: Analizar la mortalidad fetal y los factores de riesgo perinatales asociados a mortalidad fetal intraparto en gestaciones de menos de 32 semanas.

Material y métodos: Se incluyeron en el análisis todos los partos pretérmino entre las semanas 22 y 31 + 6 días, nacidos en un hospital terciario durante un periodo de 7 años (2008-2014). Se realizó un análisis de regresión logística para identificar factores de riesgo perinatales asociados a mortalidad fetal intraparto (excluidos malformaciones y cromosomopatías severas).

Resultados: En este período el 63,1% (106/168) de la mortalidad fetal (≥ 22 semanas) se produjo en gestaciones menores de 32 semanas. Ochocientos ochenta y dos nacimientos entre las semanas 22 y 31 + 6 días fueron incluidos en el análisis. La mortalidad fetal fue del 11,3% (100/882). La mortalidad fetal intraparto fue del 2,6% (23/882), afectando en el 78,2% de los casos (18/23) a gestantes hospitalizadas. Encontramos que las técnicas de reproducción asistida, la ecografía fetal patológica, la no administración de corticoides antenatales, la menor edad gestacional y el bajo peso para la edad gestacional fueron factores de riesgo independientes asociados a mortalidad fetal intraparto.

Conclusión: La mortalidad fetal intraparto afectó a un porcentaje importante de nacimientos entre las semanas 22 y 31 + 6 días. El análisis de la mortalidad fetal intraparto y los factores de riesgo asociados a esta resulta de gran interés clínico y epidemiológico para optimizar el cuidado perinatal y aumentar la supervivencia del recién nacido pretérmino.

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Introduction

Foetal mortality is a key indicator of perinatal care, and it accounts to up to 50% of perinatal mortality in countries such as the United States.¹ Preterm birth is one of the of the factors most strongly associated with foetal mortality, so that its analysis is recommended in preterm newborn studies.^{2,3} National registers do not always analyse this mortality, and comparisons between countries are hindered not only by differences in perinatal management practices, but also in the gestational ages included in the analysis.^{4,5} This may lead to the underestimation of foetal mortality, especially in pregnancies at the limit of viability.⁶

The foetal mortality rate in developed countries is estimated at five to six per 1000 births,⁷ and based on data from large-scale registers worldwide, the antepartum foetal mortality rate in the developed world is 5.2 per 1000 births and the intrapartum foetal mortality rate is 0.9 per 1000 births. In recent years there has been a decrease in intrapartum mortality, which may be due to more intensive antenatal care, improved monitoring during labour and an increased caesarean delivery rate.^{4,8} Numerous studies have analysed potential causes of foetal death in developed countries.⁹ Foetal death seems to be a multifactorial phenomenon that is sometimes difficult to explain and with multiple aetiologies.⁷ Several studies demonstrate that the risk factors associated with foetal death vary by gestational age and the timing of death, that is, whether it occurred before

or during delivery.^{7,10–15} Since in developed countries intrapartum foetal death in preterm deliveries usually takes place in hospital settings, the detection of potential risk factors associated with it is of particular clinical relevance. However, we did not find any studies that specifically addressed perinatal factors that could potentially increase the risk of intrapartum foetal death in preterm births.

The aim of this study was to analyse foetal mortality between 22 and 31 + 6 weeks' gestation and to identify potential perinatal risk factors associated with intrapartum foetal death.

Population and methods

Population

We conducted a study of pregnant women that gave birth preterm between 22 and 31 + 6 weeks' gestation at the Hospital General Universitario Gregorio Marañón de Madrid (level IIIc referral hospital for high-risk pregnancies and congenital neonatal diseases).

Methods

We conducted a retrospective observational study over a period of seven years (January 2008 to December 2014). We collected the data recorded in the SEN 1.500 morbidity and

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