



Original article

Anaemia in pregnancy and in the immediate postpartum period. Prevalence and risk factors in pregnancy and childbirth[☆]



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ABSTRACT

Introduction and objective: The objective of the study was to assess the prevalence of anaemia in the immediate postpartum period (48–72 h), determine the risk factors and the value of haemoglobin before birth to reduce postpartum anaemia.

Material and methods: A prospective, observational and longitudinal study that included 1426 women who delivered consecutively and agreed to participate in the study. Different variables, analytical, epidemiological, foetal and maternal symptoms were studied.

Results: The prevalence of anaemia in the postpartum period was 49.7%. The most important risk factors were antepartum anaemia and type of delivery. The types of delivery most influencing postpartum anaemia were, forceps (82.3%), the ventouse 67%, caesarean section (58.2%) and vaginal delivery (37.2%). In the multivariate study was found as the most important independent risk factors, the haemoglobin in the delivery day (OR 6.16, CI: 3.73–10.15) and instrumental delivery (OR: 4.61, CI: 3.44–6.19). Other independent risk factors were haemoglobin in the third trimester, episiotomy and perineal tears, ethnicity, birth weight, parity and intra/postpartum complications.

Conclusions: Anaemia in the immediate postpartum is a prevalent problem. The factors most associated postpartum anaemia were antepartum anaemia and instrumental delivery. If patients arrive at the day of delivery with haemoglobins ≥ 12.6 g/dl and were restricted to necessary instrumented deliveries and caesarean sections, episiotomies and we could avoid perineal tears we can decrease anaemia in the immediate postpartum period very significantly.

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Anemia en el embarazo y el posparto inmediato. Prevalencia y factores de riesgo

RESUMEN

Introducción y objetivo: El objetivo del estudio fue evaluar la prevalencia de la anemia en el posparto inmediato (48-72 h), determinar los factores de riesgo y el valor óptimo de la hemoglobina antes del parto para reducir la anemia.

Material y métodos: Estudio prospectivo, observacional y longitudinal que incluyó a 1.426 mujeres de forma consecutiva que accedieron a participar en el estudio. Se estudiaron diferentes variables, analíticas, epidemiológicas y clínicas tanto fetales como maternas.

Palabras clave:

Anemia

Parto

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Período posparto

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Resultados: La prevalencia de anemia en el posparto inmediato fue del 49,7%. Los factores de riesgo más importantes fueron la anemia preparto y el tipo de parto. Con el fórceps hubo un 82,3% de anemia posparto, con el vacuum un 67%, con la cesárea un 58,2% y con el parto eutócico un 37,2%. En el estudio multivariado se encontraron como factores de riesgo independientes más importantes: la hemoglobina el día del parto (OR: 6,16; IC: 3,73-10,15) y el parto instrumentado (OR: 4,61; IC: 3,44-6,19). Otros factores de riesgo independientes fueron la hemoglobina del tercer trimestre, la episiotomía y los desgarros perineales, la etnia, el peso del neonato, la paridad y las complicaciones intra- y/o posparto.

Conclusiones: La anemia en el posparto es un problema frecuente. Los factores que más se asociaron fueron el parto instrumentado y la anemia preparto. Si las pacientes llegaran al día del parto con hemoglobina $\geq 12,6$ g/dl y optimizáramos la tasa de partos instrumentados y cesáreas, restringiendo las episiotomías sin aumentar los desgarros perineales de alto grado podríamos conseguir una disminución muy significativa de la anemia en el posparto inmediato.

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Introduction

In general, the health of women in the postpartum has been little studied and has been given little attention by both clinicians and researchers and by women themselves. Morbidity, both physical and mental, is probably underestimated and ignored, reason why it represents a serious or very serious problem to women's health, both short- and long-term.¹

Postpartum anaemia has been forgotten as the rest of postpartum complications. In fact, the problem was described and published many years ago. In the distant 1953, an article by Wolff in the journal *Obstetrics & Gynaecology* already made mention of this problem.² In our healthcare area, the Spanish Society of Gynaecology and Obstetrics also recognizes that anaemia in the postpartum period is a common situation, probably poorly attended in many cases.³

Postpartum anaemia and iron deficiency represent a very important public health problem, both due to its prevalence and its socioeconomic consequences.⁴ Deleterious effects have been documented on certain economic and social issues, including child care, household chores and social and professional activities, with a decrease in productivity associated with both physical and intellectual tasks, which can have a significant socio-economic impact, especially in industrialized countries.^{4,5}

Most national and international scientific bodies which have issued recommendations on postpartum anaemia (*Center for Disease Control and Prevention, The American College of Obstetricians and Gynaecologists, Institute of Medicine, Spanish Society of Gynaecology and Obstetrics*) recognize the lack of scientific evidence, which is reflected in the variety of recommendations published.⁶ In this sense, it is unclear whether to do a population/universal screening or only do it to risk groups; it is also unclear when should be the best time to do the screening or the interpretation of the same (before hospital discharge or a week after delivery), and when and for how long they should be treated, as physiological changes occur in iron homeostasis in the first postpartum days or weeks.^{3,4,7–9}

On the other hand, there is no consensus regarding the risk factors that cause greater chance of developing postpartum anaemia,^{4,10} or the type of delivery most likely to be associated with anaemia.^{1,8} There is also no consensus on the optimal value of haemoglobin (Hb) at the time of delivery so as to reduce postpartum anaemia, figures that perhaps should be reassessed based on the results of this study.

Objective

The aim of the study was to assess the prevalence of anaemia in the immediate postpartum period in our healthcare area,

determine risk factors for anaemia in this period, and ascertain which antepartum Hb value correlates with a lower postpartum anaemia.

Materials and methods

Prospective, observational and longitudinal study, which included 1426 women. All patients who gave birth consecutively, during the 9-months of the study period, which took place between 01/11/2009 and 31/10/2010, adults (18 yr old or older) and who agreed to participate and signed the informed consent were included in the study. Patients were included in the study during the pregnancy monitoring visits, in the first trimester, carried out at the University Hospital Mútua Terrassa and its Primary Care Centres (ASSIR) of reference, by professionals from the Department of Obstetrics and Gynaecology of the said centres.

The sample was calculated assuming a risk (ϵ) of 2%, a confidence level of 95% and a population probability of 10%.

The data were collected from medical records (pregnancy record book, partogram and postpartum clinical course), a case report form specific for this study and blood tests performed during pregnancy monitoring, the day of delivery admission and before discharge (48–72 h postpartum).

Monitoring of patients during pregnancy followed the usual course according to our centre's pregnancy control protocol, adding two 2 additional blood tests, antepartum and postpartum Hb. The blood tests were performed between weeks 8–12 of pregnancy (1st trimester), weeks 24–28 (2nd trimester), weeks 32–35 (3rd trimester), the day of delivery admission (antepartum Hb) and before discharge (48–72 h postpartum, postpartum Hb). All study patients were included and monitored at Mútua Terrassa centres.

The study variables were Hb (g/dl) measured in the Sysmex XE-2100 haematology automated analyser with an immunoturbidimetry technique. Anaemia during the 3 pregnancy trimesters (WHO, UNICEF, 1997), the day of delivery and postpartum⁹ was defined as Hb < 11 g/dl. Hb < 8 g/dl was defined as severe anaemia, between 8 and 9.9 g/dl as moderate anaemia and 10–10.9 g/dl as mild. The delivery types studied were normal vaginal birth, forceps, vacuum assisted and elective and emergency/intrapartum caesarean section.

Other variables were obesity, according to the 2001 body mass index (BMI) (kg/m^2) WHO classification, new-born birth weight, birth complications (uterine rupture, uterine atony, retained placenta, dissecting aneurysm), the presence or absence of episiotomy and vaginal tears, toxic habits, iron supplementation (amount of elemental iron received during pregnancy), parity, ethnicity, patient age, gestational age, hours of delivery, obstetric

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