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Original Research – Quantitative

Survey of women's perceptions of information provided in the prevention or treatment of iron deficiency anaemia in an Australian tertiary obstetric hospital

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ABSTRACT

Background: There is limited literature to understand the perceptions of Australian women regarding the information provided by healthcare professionals relating to the prevention and treatment of iron deficiency anaemia in pregnancy.
Aim: To establish an insight into the key themes and trends within a tertiary obstetric hospital related to the provision of dietary advice and use of iron supplements in pregnancy.
Methods: A prospective patient survey of pregnant women and women up to 4 weeks postnatal attending hospital.
Findings: Of the 110 women who participated, 73.6% were provided with information on iron rich foods and 67% made dietary changes. Eighty percent of women were advised to take oral iron and 65.5% of women were taking it at the time of the survey. In women who had independently ceased oral iron, 41.7% failed to inform their healthcare professional. In the women who did inform their healthcare professional 89.5% received advice to help overcome the reason that led to cessation. The main causes included forgetfulness and side effects. Women were less likely to require intravenous iron if oral iron was commenced early.
Conclusions: Compliance with recommended oral iron is variable within a population of pregnant women. Women are provided with information on a range of issues relating to the prevention and treatment of iron deficiency anaemia; yet there is a disparity between the information provided and the resulting action. Further research should focus on targeted measures to improve understanding and compliance with treatment from the both women's and health professionals perspective.

1. Introduction

Iron deficiency anaemia in pregnancy continues to present a significant health problem throughout the world.[1] The presence of iron deficiency anaemia is not exclusive to low health resourced countries, where it is linked to socio-economic grouping, dietary intake/food shortage, worm infestation, spacing of pregnancy, parity, education, knowledge, compliance and access to iron supplementation.[2,3] Whereas in greater health resourced countries, iron deficiency anaemia in pregnancy, is linked to dietary intake, malabsorption, socio-economic status and ethnic grouping.[3] Additionally iron deficiency anaemia is associated with haemoglobinopathy, malaria and other parasitic infections.[1] Within Australia, iron deficiency is seen as a problem within subgroups of the population including indigenous remote communities, particularly so with women and children[4]; and teenage mothers.[5] Within this sub-group poor dietary intake and worm infestation are contributory factors.[4,6]

Despite current national and international guidelines, benchmarking standards to prevent or treat identified iron deficiency anaemia in pregnancy,[7–11] it continues to challenge healthcare professionals, in part due to the lack of robust evidence from well-designed clinical trials reporting on important clinical outcomes.[12–15] Primary prevention of iron deficiency anaemia is focussed upon improving dietary intake of iron through the consumption of a well-balanced diet which includes both animal

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sources of iron (haem iron) and vegetable and cereal sources of iron (non-haem iron). In addition dietary absorption is enhanced with the action of Vitamin C and inhibited with the concurrent consumption of tannins (tea and coffee), phytates (legumes and cereals) and calcium.[9–11,16] Second line therapy includes the use of oral iron supplements. There is a lack of consensus in relation to optimal dosing of oral iron supplementation, universal versus targeted treatment or indeed daily versus intermittent versus no routine oral iron supplementation.[10–18] The Royal Australian and New Zealand College of Obstetricians and Gynaecologists do not recommend the routine use of iron supplements in pregnancy.[11] The current Australian and New Zealand dietary guidelines recommend an intake of elemental iron per day in pregnancy of 27 mg.[16] Expert recommendations for Asia-Pacific region suggest 80–100 mg elemental iron supplements daily if the haemoglobin (Hb) < 105 g/L and serum ferritin < 20 μg/L.[8] National guidelines from the United Kingdom do not recommend routine iron supplementation for all women, the guidelines suggest the use of 100–200 mg elemental iron daily in the treatment of established iron deficiency anaemia.[10] Cochrane reviews acknowledge the paucity of good trial evidence and conclude: daily oral iron treatment improves haematological indices.[12] More specifically Cochrane concludes that daily iron supplements reduce the risk of low birth weight and can prevent maternal anaemia and iron deficiency in pregnancy,[14] intermittent iron and folic acid supplements produce similar results as daily supplements and are associated with fewer side effects.[15] Notwithstanding the lack of consensus regarding optimal dosing, researchers, clinicians and authors concur regarding reduced compliance to iron supplementation.[3,9,10,12,14–16] Gastro-intestinal side effects are frequently cited as a causative factor in reduced compliance to oral iron supplementation in pregnancy.[17,19–24] However studies suggest that education, communication, social and cultural determinants also play a role in lack of motivation to comply with treatment.[7,17,19,25] This is compounded by a lack of recognition of the importance of preventing and treating iron deficiency anaemia, congruence of the symptoms of anaemia with advancing pregnancy and the use of natural or traditional remedies.[17]

The aim of this study is to establish an insight into the key themes and trends within a tertiary obstetric hospital that includes a population of high, medium and low risk pregnancies. Themes related to the provision of dietary advice and use of oral iron supplements in pregnancy including; barriers to compliance, types of supplements used, and the timing of commencement and cessation of oral iron supplements were explored.

2. Subjects and method

2.1. Sample

This prospective patient survey was conducted with pregnant and postnatal women who attended a tertiary obstetric hospital within Western Australia for antenatal care and/or delivery using convenience sampling. In keeping with guidelines for sampling size in quality improvement activities a sample size of 150 would be required to demonstrate a 95% confidence interval.[26] The population demographics of the hospital are diverse including; indigenous groups, migrant groups, and refugees from a widespread geographical area. As the sole tertiary obstetric referral centre for Western Australia its specialised services include co-existing maternal disease, elevated body mass index, teenage pregnancy, drug and alcohol addiction, foetal abnormality/disease, mental health disorders and maternal diabetes. The average annual delivery rate is 6000 women and in keeping with its tertiary referral role and geographic catchment, cares for a range of women with 'low' through to the 'high' risk pregnancies. In addition the hospital operates a day treatment Infusion Unit, where intravenous iron is used to treat established iron deficiency anaemia that fails to respond to oral iron (unless birth is imminent which precludes a trial of oral iron).

Women were invited to participate in the survey if they were pregnant, aged over 16 and were deemed to have a sound comprehension of the English language to provide verbal consent to participate and to read, understand and complete the survey. Women included were in their 2nd and 3rd trimester of pregnancy or less than one month postnatal, they were sourced as in-patients, out-patients and day treatment patients. Exclusion criteria included: women who were not pregnant, or whose newborn infants were greater than 1 month old, age < 16 years, inability to complete the survey due to language barriers and if they expressed a preference not to complete the survey. In addition hospital in-patients whom the Ward Co-ordinators felt it was inappropriate to disturb regarding the survey at the time were also excluded. This group included women who had an exacerbation of a mental illness, had just given birth and were sleep deprived or had had a traumatic adverse event.

2.2. Methods

The Midwife conducting the survey asked the women whether they would like to participate in the study. It was explained that we were trying to establish some of the patterns associated with the prevention of anaemia in pregnancy. Additional permission to approach women admitted as in-patients was obtained from the Ward Co-ordinators. The women, who provided verbal consent, completed the survey anonymously and were provided with a pre-paid envelope for the reply. On completion the survey was returned in the sealed envelope directly to the midwife conducting the survey, by internal/external mail or by placement in a survey results box. The survey or envelope contained no identifying patient information. If more than 50% of the survey data fields were incomplete, then the survey would be excluded from the analysis. The sample size was not calculated on a primary endpoint as it was designed to provide an insight into a range of women's perceptions of current practice. The results were analysed prospectively using basic descriptive statistics with Microsoft Excel.

The hospital encourages all women to eat a well-balanced diet in pregnancy with particular attention to improving dietary iron content, whilst limiting dietary practices associated with impaired iron absorption. Assessment of the full blood picture is undertaken routinely at the 20 week booking visit, and repeated at 28 and 34–36 weeks gestation. In addition serum ferritin levels are assessed in women deemed at high risk of iron deficiency anaemia, with known or suspected haemoglobinopathy disease or in the presence of other maternal co-morbidities such as chronic disease, bleeding disorders, major abnormal placental presentations, etc. Further testing is undertaken as directed by clinical guidelines if anaemia is suspected or in the monitoring of treatment efficacy. If iron deficiency is identified without anaemia (serum ferritin < 30 μg/L), women are recommended to commence 65 mg oral elemental iron daily. If women present with iron deficiency anaemia Hb < 110 g/L in the first and third trimester, or Hb < 105 g/L in the second trimester and serum ferritin < 30 μg/L, they are advised to commence 100 mg elemental iron daily. Third line treatment is the use of intravenous iron in confirmed iron deficiency anaemia which has failed to respond to a trial of oral iron supplementation (unless birth is imminent which precludes a trial of oral iron).

The hospital Institutional Ethics Committee provided permission to conduct the survey and publish the results via the Governance, Evidence and Knowledge Outcomes database (GEKO). This process includes a formal review of the aims of the activity, a

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