

A Case Report of Severe Anemia in a North Indian Surrogate Mother

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Received date: September 06, 2017, Accepted date: September 11, 2017, Published date: September 14, 2017

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Abstract

Recently, our unit tackled a case of severe anemia in a surrogate mother during the third trimester of a twin pregnancy. Her hemoglobin was just 5 g/dl, whereas the normal range should ideally be within the range of 12 g/dl to 14 g/dl. Due to timely intervention, we managed to avoid complications. However, it is important to discuss this case, as it is found that in the Assisted Reproductive Technology (ART) centers worldwide, multiple embryo transfers is preferred over single embryo transfers, which often result in higher morbidity and mortality in mothers and infants.

Keywords: Iron deficiency anemia; Surrogate mothers; Pregnancy third trimester; Maternal death; Twin pregnancy; High risk pregnancy; HELLP Syndrome; Maternal mortality; Haemoglobinopathies; Embryo transfer; Malnutrition; Vitamin B12

Introduction

Anemia is a medical condition characterized by low hemoglobin (Hb). It is very important to recognize and treat this condition in pregnancy, as both mother and fetus gets affected due to the low availability of oxygen, which is necessary for the metabolism. Pregnant women fall under high risk as there can be loss of blood during miscarriage or delivery, which compromises the health of the mother leading to morbidity and mortality.

Types of Anemia in Pregnancy

- Nutritional Anemia: Deficiency of iron, folic acid, vitamin B12 and proteins causes Anemia.
- Hereditary Anemia: Hemoglobinopathies like sickle cell anemia, thalassemia and many other genetic conditions.
- Hemolytic Anemia: These are less common and due to increase in breakdown of RBC- ex : HELLP Syndrome

Prevalence in India

As per WHO (World Health Organization) figures, anemia in pregnancy is high in India at 65-75% compared with 51% in developing countries and 14% in developed countries [1]. Reportedly, around 2 billion people amounting to one third of global population are anemic [2]. Indian maternal deaths contribute to 80% of deaths from anemia in South Asia [3].

Studies conducted in India

Several surveys have been conducted in different parts of India on anemia. National Family Health Survey (NFHS) [4,5], District level household survey (DLHS) [6], Indian Council of Medical Research (ICMR), micronutrient survey by National Nutrition Monitoring Bureau (NNMB) are some of them. These studies have indicated that anemia is not restricted to poor or underprivileged people and is high even among rich and educated groups [6]. They have found that the

most common cause for anemia is low intake of iron and folic acid in the Indian diet. The fiber intake along with high phytates in the diet also reduced the absorption of Iron. The third reason is worm infestation, causing small amount of blood loss over long periods and also infections like malaria [7,8].

Severe Anemia

There are stages of Anemia where the women can go through compensated anemia, decompensated anemia and the circulatory failure which occurs at Hb levels less than 5.0 g/dl. When Hb is very low, anaerobic metabolism occurs due to low oxygen resulting in the increase of Lactic acid. If this is not managed on time then pulmonary edema and death can happen. Cardiac failure can happen in around one third of cases when Hb is less than 5 g/d [9]. Delivery poses real threat to these women, as even a minimal loss of 200 ml of blood can result in circulatory failure. Proper treatment of severe anemia can help to save mothers life and it is important that, blood transfusion and iron injections are readily available, for a good obstetric practice.

Mode of Iron treatment

Oral iron preparations have not shown to help in moderate/severe anemia [10]. Parenteral Iron preparations must be available at community health centres and primary health centres to improve the situation. Blood transfusion is the most important step in improving severe anemia.

Case Report

A healthy surrogate mother underwent embryo transfer with two day 3 embryos after priming and luteal support. During the screening process, her Hb was noted to be 9 g/dl and she was prescribed Iron tablets as per usual practice. She conceived and twin pregnancy was confirmed in an early pregnancy scan. Routine medications were given along with luteal support. The surrogate mother wanted to return to her village in North India, so she was discharged at 8 weeks of pregnancy, until this time, she was hospitalized due to vomiting.

The surrogate mother had routine antenatal case and all her check-ups and scans were normal till sixth month. Low Hb of 8 g/dl was noted after the screening at 24 weeks. Although, she was advised to get

admitted, she refused and returned home along with Iron, folic acid, vitamin B complex and protein supplements. She suffered from vomiting, in spite of administering antiemetics and she was reluctant to take iron tablets as she suffered from constipation and gastritis. She was reluctant to come for check-ups and often the coordinator had to call multiple times to request her to come for check-up. At the 30th week, she was noted to have very low Hb of 5.5 g/dl which indicated severe anemia. Surprisingly, even after repeated questioning, she did not admit to any medical symptoms, not even tiredness or dizziness. The growths of both the fetus were seen to be normal on scan.

She was recognized as high risk pregnancy, was admitted and all investigations were done to evaluate the cause of anemia. Peripheral smear showed microcytic hypo chromic anemia, the serum ferritin was 8.49 ng/ml, which is much below the normal levels. Her serum albumin levels were below normal and the stool was negative for occult blood. Deworming was done with albendazole. Parenteral Iron Infusions were started as slow infusion of Iron Sucrose injection (has elemental iron of 20 mg). After 2 days she was noted to have mild jaundice and her Bilirubin was marginally raised to 1.2 mg/dl, indirect Bilirubin 0.67 mg/dl. Her blood tests for Hb electrophoresis were still pending. Her Hb levels were not improving, so blood transfusion was started. Along with that other infusions like I.V. Vitamin B Complex and I.V. Amino acids were also started. Hoping that it is only a case of severe Iron deficiency anemia and no other Haemoglobinopathies are present, she was treated. Cardiotocography (CTG) was done daily to assess the wellbeing of both the fetus. Blood screening with Hb electrophoresis came back as normal. She was transfused with 4 units of blood and her Hb came up to 9.7 gm/dl after 1 week. Her Liver function tests were conducted daily and stayed the same.

When I am writing this article she is ready to go home after her Caesarian section and her Hb is 10.5 g/dl and her LFT is normal. The two healthy babies were handed over to the biological parents.

Analysis of the case

Although she was paid on a monthly basis for good food and other expenses, we suspect that she was not taking care of her diet. The prolonged duration of vomiting, could have added to the malnourishment. The compliance with Iron tablets, vitamin tablets and protein is highly doubtful. The biggest iatrogenic contributor is the twin pregnancy due to transfer of 2 embryos, which could have been avoided. As surrogate mothers are given the choice of staying at hospital or their house, it is difficult to ensure compliance with medicine and diet. In comparison with the other surrogate mothers who opted to return to their own homes during pregnancy term, this was an isolated case.

As mentioned before, the prevalence of Anemia is very high in India and is a major contributing factor for maternal and fetal morbidity and

mortality. This should be addressed by the government and steps should be taken to eradicate this condition by fortification of food, by providing free supplement to pubertal girls and pregnant and lactating mothers. Educating rural and urban women about appropriate diet and spacing of pregnancies will definitely make a positive impact. As the hook worm infestation is high in India, Government should take steps to bring about a policy to deworm every pregnant woman like the polio eradication program. This will be efficacious, practically possible, cheap and prevent many fatalities of pregnant women and infants. More studies should be conducted in rural areas to identify the real magnitude of this problem, as it appears to be just a tip of the iceberg.

A proper national regulatory body to control the Assisted Reproduction Technology (ART) like the Human Fertilization and Embryology Authority (HFEA) in UK will ensure that multiple pregnancies are minimized. The current practices of gynecologists transferring multiple embryos (even 5 or 6 embryos) are definitely contributing to the existing problem of anemia. There are plenty of conferences happening in medical field, but they are mostly teaching about new technologies and new medicines. It is high time that we realize that basics are more important in saving lives and we should have more studies and lectures on simple problems like anemia, which is easily preventable.

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