



Case Report

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Successful management of severe anemia without blood transfusion in pregnancy and puerperium using Mojeaga® as adjunct therapy: A report of two cases

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Abstract

Background: Severe anemia occurring close to term pregnancy or puerperium usually requires blood transfusion for correction of anemia. We report two cases of Jehovah's Witnesses (JW) patients with severe anemia who presented with management dilemma. The patients, along with their families and the Hospital Liaison Committee of JW vehemently refused blood or its products. **Case summary:** Case 1: A 25-year-old unbooked Nigerian woman, primigravida who presented at the gestational age of 37 weeks plus 3 days with severe anemia and intrauterine growth restriction. Anemia was corrected two weeks later with Mojeaga (a special blend of Alchornea, Pennisetum, and Sorghum extracts) 50 mls administered three times orally per day as an adjunct therapy to conventional oral iron therapy and she subsequently had elective induction of labor at the 40th week of gestation with spontaneous vertex delivery of a live male baby with birth weight of 2.3kg. Both mother and baby were discharged within 48 hours without any sequelae. Case 2: A 42-year-old multiparous Nigerian house wife with a history of progressive abdominal swelling noticed six weeks of her childbirth with associated weight loss. Her abdomen was distended and investigations revealed neutrophil leukocytosis, and severe anemia. Abdominal ultrasound revealed a large complex ovarian mass. Anemia was corrected two weeks later following intake of Mojeaga 50 mls administered three times orally per day as adjunct therapy to conventional oral iron therapy and she subsequently had ovariectomy. She made a complete recovery without blood transfusion. **Conclusion:** In these reports, we have described two cases of severe anemia in pregnancy and in puerperium who were successfully managed using Mojeaga as adjunct therapy to conventional oral iron therapy while maintaining patient autonomy. Future development of randomized trials is needed to prove efficacy and safety of Mojeaga as adjunct therapy to conventional oral iron therapy for correction of anemia in obstetrics and gynecology practice.

Keywords: Hospital Liaison Committee; Jehovah's Witnesses; Conventional iron therapy; Efficacy; Safety.

BACKGROUND

Severe anemia (hemoglobin level of <7g/dl) in pregnancy portends great danger and is sometimes associated with fetal and maternal morbidity and mortality [1]. Anemia in pregnancy is responsible for about 20% maternal deaths in Africa and 11% maternal deaths in Nigeria [2]. It may also lead to pre-term delivery, low birth weight, fetal impairment and infant death [1-3]. When it is discovered in the third trimester of pregnancy especially close to term, or puerperium, it usually requires blood transfusion for the correction of anemia [3]. These circumstances become intricate when the patient in question declines blood products especially in cases of Jehovah's Witnesses (JW). Respecting a patient's religious autonomy and providing optimal care of JW patients can be found in various branches of medical literature [3-5].

We report two cases of JW patients with severe anemia who presented with management dilemma. To the best of our knowledge, no cases of severe anemia successfully managed with Mojeaga (a special blend of *Alchornea*, *Pennisetum*, and *Sorghum* extracts, produced by Mojeaga International Ventures Ltd, Nigeria) as adjunct therapy to conventional oral iron therapy have been reported. The patients, along with their families and members of the Hospital Liaison Committee of Jehovah's Witnesses vehemently refused blood or its products.

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CASE 1

We presented a 25-year-old unbooked Nigerian woman, primigravida who presented at the gestational age of 37 weeks plus 3 days with severe anemia and intrauterine growth restriction. On presentation she was pale but there were no features of cardiovascular decompensation. An abdominal examination revealed symphysis-fundal height of 30 cm, which was not compatible with her gestational age of 37 weeks plus 3 days. Other systemic examinations were unremarkable. Full blood count revealed hemoglobin concentration of 6.0g/dl, leukocytosis but abdominal ultrasound, urinalysis, retroviral disease screening, hepatitis B surface antigen and Hepatitis C antibodies were normal. She remains committed to her decision to refuse blood transfusion due to her religious beliefs. She was counseled and commenced on Mojeaga 50mls three times daily and Astyfer one capsule two times daily. On weekly visit, there was marked improvement in the levels of palor and repeat hemoglobin concentration two weeks later was 10.5 g/dL. The symphysis-fundal height had appreciated to 32 cm. An evaluation at that time showed correction of anemia. Further workup including full blood counts, electrolytes, and liver function tests were found to be within normal limits. Following the expectant management, pregnancy was ended via an elective induction of labor at the 40th week of gestation with spontaneous vertex delivery of live male baby that weighed 2.3 kg. Baby was sent to neonatologist for observation. Both mother and baby were discharged home after 48 hours without any sequelae.

She is presently on a follow-up basis.

CASE 2

A 42 year old multiparous house wife presented initially six weeks after her child birth with a history of progressive abdominal swelling and weight loss of 6 weeks duration. She was lactating at the time of presentation. She had no prior history uterine fibroids. Upon initial evaluation in the gynecology clinic, the patient was pale and there were no features of cardiovascular decompensation. The pulse rate was 96 beats per minute and blood pressure was 110/70 mmHg. The respiratory rate was 18 cycles per *min*. Her physical examination was notable for a non-mobile 20 weeks uterine size. There was no vaginal bleeding. At presentation, her hemoglobin level was 6.1 g/dL and white blood cell count of 17,300 with neutrophilia. The patient's coagulation profile showed normal findings. Her electrolyte panel was within normal limits. An electrocardiogram was normal. Retroviral screening was negative.

Given the patient's ongoing constitutional symptoms, there was significant concern for an ovarian malignancy; the mass was felt to be higher and an abdominal ultrasound was performed, which revealed multifocal and complex ovarian mass without evidence of malignancy or active infection. The patient was a JW and carried a durable power of Attorney Card stating that she declined all blood products including red blood cells, platelets, and plasma. She was counseled and commenced on Mojeaga 50mls three times daily and Capsule of Astyfer two times daily, and broad spectrum antibiotics. Two weeks later, repeat hemoglobin was 10.0g/dl and marked improvement in the levels of palor. She was subsequently worked up for the surgery (ovariectomy) which she had successful outcome without blood transfusion. She is presently on a follow-up basis.

DISCUSSION

These challenging cases validate the need for the use of any suitable and available blood transfusion alternatives in management of JW. As required, most JW patients carry with them durable power of attorney (DPA) cards detailing their desires and listing any minor blood components and blood conservation methods acceptable to them [4, 5]. When such a patient presents, it is imperative to ask the patients

about the card and at the same time confirm their wishes regarding blood products.

Among Jehovah's Witnesses, one target in their search for alternatives to blood transfusion is in the use of agents that stimulates blood cell formation [6]. Once attention is turned to stimulating erythropoiesis, numerous alternatives are available. Because blood products cannot be replaced, the goal at this point must be to stimulate erythropoiesis [6]. A number of approaches have been reported in the literature using a combination of erythropoietin, intravenous or oral iron, vitamin B12, folate and Ferric carboxymaltose but not Mojeaga [5, 7, 8].

Recombinant human erythropoietin stimulates erythropoiesis and is suitable to many Jehovah's Witnesses. Although Recombinant human erythropoietin is very efficacious, it is expensive relative to Mojeaga. Patients receiving Recombinant human erythropoietin usually require high doses, and duration of treatment may not be established [3]. Mojeaga® (produced by Mojeaga International Ventures Ltd, Nigeria) is a natural preparation containing a combined *Alchornea*, *Pennisetum*, and *Sorghum* extracts [8, 9]. According to manufacturers, it contains free oral iron preparation among other nutrients that allows co-administration of conventional oral or parenteral hematinics. Mojeaga has been approved by National Agency for Food and Drug Administration and Control (NAFDAC) with NAFDAC registration number of A7-0996L. The *Pennisetum* extract and *Sorghum* extract in Mojeaga are source of iron, potassium, flavonoids and other phytonutrients. The exact mechanisms of its work in promoting anemia are not known. Since it was used as adjunct or adjunctive therapy in these reported cases, it may have worked by maximizing the effectiveness of the primary or initial therapy (conventional iron therapy) co-administered with it. It may be better tolerated if Mojeaga is administered in sips. However, according to manufacturers, Mojeaga may work by promoting healthy metabolic processes because it contains high levels of B-group vitamins [8, 9]. Mojeaga may also work by mopping up the free radicals and reactive oxygen species, and could reverse the lipid peroxidative and cellular damages [9]. It may also have some anti-inflammatory property and could enhance general body metabolism and immune system [8, 9]. Additionally, it is advisable to consult with a hematologist, especially those acquainted with JW patients for assistance with dosage and duration of treatment in cases of severe anemia.

CONCLUSION

In these cases of JW patients with life-threatening severe anemia, adjunct treatment with Mojeaga resulted in a positive outcome. However, preventative care with early booking for antenatal care and adequate post natal care would have avoided this ethically difficult and parsimoniously pricey experience. Respecting patient autonomy and honoring the religious beliefs of patients such as those of Jehovah's Witnesses who refuse blood transfusions is a challenging dilemma for obstetrician-gynecologists. Future development of randomized trials is therefore needed to prove efficacy and safety of Mojeaga as adjunct treatment to conventional iron therapy for correction of anemia in pregnant women and in the puerperium. Such future studies may help explain the possible mechanisms of correction of anemia in patients receiving Mojeaga as adjunct therapy, which may or may not corroborate with the already known hemodynamics of iron and hemoglobin in blood.

Authors' contributions

GUE, managed the patients, conceived the manuscript, and did review of literature. HIO, ACO, CPI, and EPO did review of literature and provided critical revision to the manuscript. All authors read and approved the final copy of the manuscript.

Ethics approval and consent to participate

Informed consents were obtained from the patients.

Consent for publication

Written informed consent was obtained from the patients for publication of this case report. A copy of the written consent is available for review by the Editor-in-Chief of this journal.

Competing interests

The authors declare that they have no competing interests. Publication of these case reports should not be considered an endorsement of any product used in the management of these patients by the Nnamdi Azikiwe University or any of the organizations where the authors are affiliated.

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