Management of a severe anemia with recombinant human erythropoietin in a Jehovah’s Witness patient: Case report and review of literature

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Introduction

Jehovah’s Witness accept most available medical treatments, but not blood transfusions due to their religion’s interpretation of several passages from the Bible. The medical care of these patients becomes problematic in cases of severe life-threatening anemia. Recombinant human erythropoietin (rHuEPO), a biosynthetic hormone that regulates red blood cell (RBC) production, is available commercially as epoetin alfa, epoetin beta, and darbepoetin alfa.

Objective

Describe the case of a patient with severe anemia who received erythropoietin therapy based on a review of literature.

Methods

We performed a literature search of the medline with key words: anemia, Jehovah’s witness, erythropoietin.

Case report

A 77-year old woman sent to the emergency department with thoraco-epigastric pain, blood clots and vomiting since a week. Cardiac examination revealed a coronary syndrome caused by anemia (Hb=5.6g/dl) (hematocrit=Ht=18.9%).

Hematocrit and haemoglobin evolution

- Hematocrit (%)
- Haemoglobin (g/dl)

Discussion

Currently in emergency there is no alternative to transfusion and a higher mortality is linked to a low haemoglobin level. Several strategies can be utilized to treat the Jehovah’s Witness patient: intraoperative blood salvage, minimizing metabolic demand, maximizing oxygen delivery, reducing iatrogenic blood loss and increasing RBC production.

Some clinical trials have shown the efficacy of rHuEPO, used in off-label, administered once weekly or alternative day, to reduce mortality and sometimes RBC transfusions but always to increase haemoglobin level. Support with amino acids, vitamin B12, folate and particularly iron accelerates the correction of anemia when they are associated with rHuEPO.

Eleven recent publications reported experiences with rHuEPO intravenous (IV) or subcutaneous (SC) administration in anemia therapy. The optimal dose of rHuEPO remains unclear: dosage ranges from 200UI/week darbepoetin alfa, to 1300UI/kg of rHuEPO three times weekly, until 600UI/kg/day for 2 days then 300UI/kg/day. After starting treatment the haemoglobin level doubled in 19 days (in an average of 4 days to 30 days).

Conclusion

Our weekly rHuEPO protocol is in the lower targets found in the literature but it appears as effective as other protocols. An important variability without major efficacy difference appears about rHuEPO used for Jehovah’s Witness patients. Few patients can survive with a haemoglobin level of less than 5g/dl without transfusion. rHuEPO may provide an alternative therapy in life-threatening anemia, when blood transfusion is not accepted by the patient.