Case Report

Outcome and Quality of Life in a Patient with Advanced Multiple Myeloma in Whom Blood Transfusion Is Not an Option

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Abstract

Background: Patients with multiple myeloma often experience severe anaemia, complicating management, especially when they object to blood transfusion due to religious beliefs.
Objective: To present a successful management approach for severe anaemia in a patient with multiple myeloma who refused blood transfusion.
Methods: We present a case of a 58-year-old male patient with multiple myeloma who objected to blood transfusion due to his religious beliefs.
The presenting haemoglobin level (Hb) was 2.5g/dl with signs and symptoms of heart failure and hyperviscosity syndrome. We resuscitated the patient and commenced Hb optimisation using intravenous iron, intravenous vitamin C, intravenous Vitamin B complex, and subcutaneous human recombinant erythropoietin Beta.
Results: The patient progressed from a wheelchair to independent walking, achieved remission, and saw haemoglobin rise to 8 g/dL. Stable blood pressure and PCV (30-35%) indicated successful management.
Conclusion: It is possible to manage very severe anaemia without blood transfusion in patients with multiple myeloma. We recommend clinical trials on managing anaemia without blood transfusion in multiple myeloma patients. This strategy will benefit many patients who need treatment in settings where transfusion is not possible and especially where blood transfusion is not an option.

Keywords: Multiple Myeloma, Quality of Life, Blood transfusion, Anaemia

Introduction

Cancer-induced anaemia is a common complication in oncology practice. The anaemia could be nutritional, infiltrative, autoimmune, drug-mediated, and even a direct effect of the cancer cells on erythropoiesis.[1] Blood transfusion has become the mainstay of haemoglobin (Hb) optimisation in anaemic patients as it improves clinical outcomes.[2] When malignant patients with anaemia refuse a blood transfusion, it burdens the attending physician, who may not be familiar with some alternatives.

Blood transfusions, a lifesaving medical intervention, can pose ethical and legal challenges when patients refuse them due to religious or other beliefs. Some religious interpretations view the ingestion or introduction of blood into the body as a violation of their faith. These interpretations may stem from specific scriptures or broader religious principles regarding bodily integrity or sanctity of life.[3,4] Individuals may also refuse blood transfusions due to non-religious beliefs or concerns. These concerns may include fear of infection from bloodborne pathogens despite strict safety standards, philosophical objections to using another person's blood, and personal beliefs in alternative medicine or faith healing.[4,5] We present the management of a case of a multiple myeloma patient who refused a blood transfusion due to religious reasons.

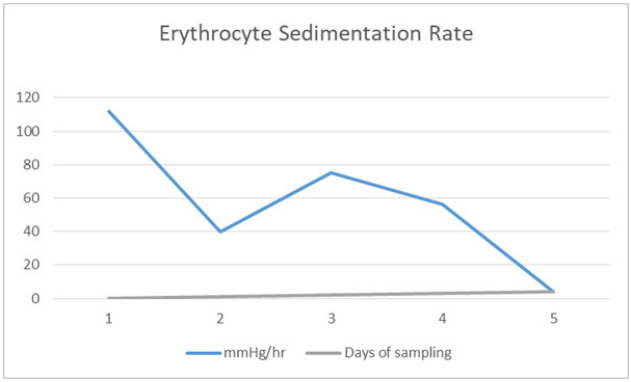

Fig.1. The high ESR slowly dropped with treatment and started rising during relapse.

Case Presentation

A medical practitioner in his early 60s presented at the haematology clinic with a history of inability to walk due to severe hip pain for three years. He also experienced bilateral leg swelling of one week duration, slurred speech, and weakness. The patient had stable health until three years before presenting at our clinic when hip pain commenced. It was insidious at onset and progressively worsened. It started with one hip and progressively involved both hips. There was no history of trauma, no signs of fractures, and no aggravating or relieving factors.

There was difficulty in breathing on mild to moderate exertion. The patient was hypertensive with recurrent leg swelling but no morning facial puffiness or reduction in urine volume. There was a history of marked weight loss. The patient was alert and well-oriented regarding time, person, and place. The patient had moderate dyspnoea, was not cyanosed and jaundiced, and had no organomegaly. Bone marrow aspiration (BMA) showed increased cellularity with a typical trail and a moderate increase in plasma cell population with a few dysplastic and malignant forms. Haemoglobin at presentation was 2.5g/dL (PCV 5.2%). The patient has never had a blood transfusion. The patient earlier stated that he was not going to have a blood transfusion because of his religious beliefs (he is of the Jehovah's Witness Faith).

Case Management

We decided to manage this patient. He provided us with a signed Durable Power of Attorney (DPA) that indemnified the treating physicians should the intervention fail.

He was admitted on a diagnosis of plasma cell dyscrasia and queried Multiple Myeloma pending other investigations. The cardiology team reviewed and managed his hypertension. Serum protein electrophoresis (SPE) showed a polyclonal band, and serum light chain analysis revealed a markedly increased light chain with little or no heavy chain. Erythrocyte sedimentation rate (ESR) was high (Fig.1). Serum calcium was within the upper limit of the reference value after correction with albumin level. X-ray of the hip showed marked destruction of the femoral head and acetabulum and severe osteolytic lesions (Fig. 2).

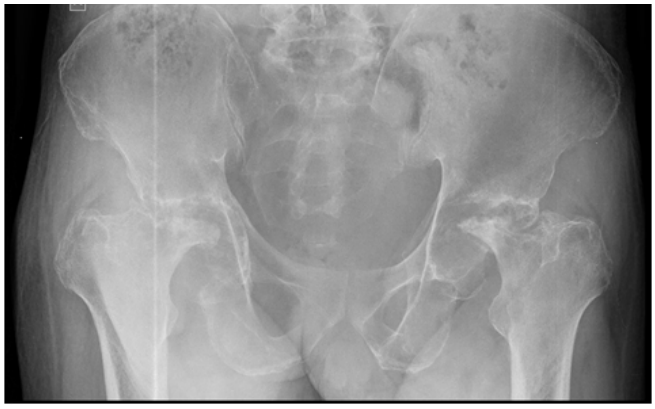

Fig 2. X-ray of the hip showing marked destruction of the femoral head and acetabulum and severe osteolytic lesions

The patient's Hb was optimized using IV iron sucrose 100mg in 200ml of normal saline, IV ascorbic acid 500mg, oral vitamin B complex (one tablet three times a day), and subcutaneous human recombinant erythropoietin beta (Recormon). The dosage of iron was calculated using the Ganzoni formulae (Total body iron deficit/cumulative iron dose (mg) = body weight (kg) x (target Hb - actual Hb in g/L) x 0.24+ iron depot (mg) for total parenteral iron. The patient received 1500mg of elemental iron in iron sucrose during treatment. At the end of treatment, the Transferrin Saturation was still within the reference interval. When the haemoglobin rose to 5g/dl, we commenced him on IV Bortezomib 1.3mg on days 1, 3, 8, 11, 15; Dexamethasone 40mg daily x 5 days. Tabs Lenalidomid 25mg daily.

His clinical condition deteriorated due to declining SpO2. There was tachypnoea and increased pulse and respiratory rates, but these gradually stabilised with intermittent oxygen, fluid, and electrolyte management.

Outcome

Clinical conditions and laboratory parameters like weight gain improved. The blood pressure became more stable compared to readings at first presentation, and haemoglobin increased to 8g/dl (Fig 3). He was discharged home on crutches.

The index patient, who previously used a wheelchair at the presentation, has exhibited notable improvement in mobility and is now ambulating without orthopaedic correction. Moreover, the patient demonstrates enhanced functional capacity, evidenced by their ability to perform household tasks previously deemed unfeasible. Their Functional Assessment of Cancer Therapy (FACT-G) score has risen from 42/108 at admission to 70/108, indicating a substantial enhancement in quality of life (Table 1). Interestingly, throughout the follow-up period, the patient's packed cell volume (PCV) was

maintained between 30 and 35%, indicative of effective anaemia management. Furthermore, the patient achieved remission from multiple myeloma, contributing to the sustained improvement in QoL observed during follow-up assessments.

Discussion

This is a patient with severe anaemia, as a complication of advanced Multiple Myeloma, being managed without blood transfusion successfully with accompanying improvement of the anaemia and quality of life (QoL).

Anaemia is a complication of numerous malignancies and often contributes significantly to morbidity and mortality.[7] The accompanying anaemia can affect patients' overall quality of life with these malignancies.[7] There are many causes of anaemia in cancer patients.[8,9] Successful treatment of anaemia is a significant step in achieving success in the disease. When this is left untreated in advanced malignancy, the outcome is usually poor.

Assessment with FACT-G Questionnaire	PWB Score/28	SWB Score/28	EWB Score/24	FWB Score/28	TOTAL Score/108
First assessment	27	18	4	7	46
Second	10	21	4	7	41
Third	10	24	7	4	45
Fourth	8	21	2	11	42
Fifth	8	22	5	7	42
Sixth	10	23	24	13	70

Table 1 QoL Score using FACT- G for oncology patients:
(PWB =Physical well-being, SWB = Social/Family Well-Being, EWB = Emotional Well-Being, FWB = Functional Well-Being).

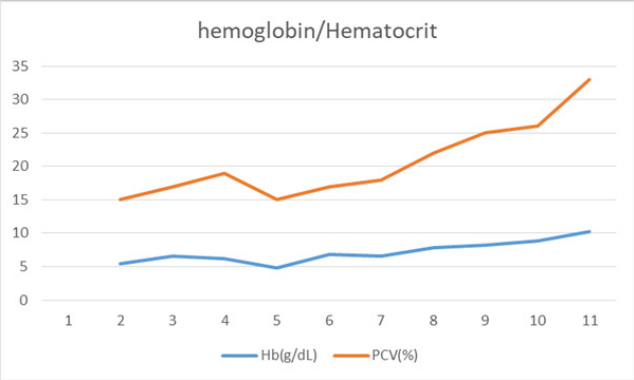

Fig.3 Gradual rise of the Haemoglobin during treatment. The dip represents the period of relapse.

Anaemia is one of the most frequent clinical presentations in multiple myeloma and may sometimes be the only presenting sign. The anaemia is relative to erythropoietin deficiency due to renal impairment by myeloma and bone marrow infiltration.[8,9] If left untreated, this may lead to delays in diagnosis and commencing treatment, decreased quality of life (QoL), and very severe morbidity and mortality. Most often, the patient will have to be optimised with several units of blood transfusion to stabilise and enable the patient to withstand chemotherapy. For patients where blood transfusion is not an option, this situation creates a management dilemma for the physician. Allowing the patient to go

without resuscitation or referral creates an ethical dilemma for the managing team. Patients who are of the Jehovah's Witness faith have been treated successfully for malignant conditions without blood transfusion.[10,11]

There is no consensus guideline for managing patients who refuse a blood transfusion. Many physicians have opted to refer such patients to willing and competent hands, while others have made efforts to persuade, coerce, blackmail, or deceive patients into accepting a blood transfusion. Others have asked for assistance near and far in getting information to help manage the patients. Some have successfully treated such patients using available resources to stabilise them using oxygen, human recombinant erythropoietin, intravenous iron, and vitamin C, with good outcomes.[8,12] Our patient's haemoglobin rose from 3g/dl to 8g/dl, enabling us to administer needed chemotherapy. This is in keeping with several success stories like that of Mittleman et al.,[13], who used Erythropoietin to optimise patients with multiple myeloma with good outcomes.[12,13] The report showed no adverse reaction from the intravenous iron and erythropoietin.

At the point of contact, the QoL was low; this started to increase as a treatment for anaemia, and MM continued. At relapse and salvage therapy, the QoL also improved, remaining at its peak to date.

DECLARATIONS

Ethical Approval
Not applicable

Patient's Consent
The patient signed consent for using his clinical data for this case report.

Conflict of interests
The authors declare no conflict of interest

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None

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