

Case Report

Iron Deficiency Anemia: An Illustration of Current Practice in Malaysia - The Perils Involved

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- Patient blood management

Abstract

Despite many advances in the medical field, the proper diagnosis and management of anemia, iron deficiency anemia (IDA) in particular seems elusive. Anemia in Malaysia is significant with 20.0% - 39.9% prevalence and this translates to excessive burden to the health care system and the patients themselves, especially when it is under-diagnosed, considered as harmless and inappropriately managed. This case illustrates among many, the current practices in handling anemia and how it proves to be a perilous course.

ABBREVIATIONS

IDA: Iron Deficiency Anemia; FID: Functional Iron Deficiency; ASIS: American Spinal Injury Association; IS: Impairment Scale; ABT: Allogeneic Blood Transfusion; PBM: Patient Blood Management

INTRODUCTION

Medical knowledge has improved in leaps and bounds over the past decades. Despite the advances in the medical field, we are still lagging behind in the proper detection and management of iron deficiency anemia (IDA). As this case will illustrate, the perils associated with managing IDA inappropriately will affect not only the patient, but the healthcare team too.

CASE PRESENTATION

A 28 year- old man, with history of spinal cord injury in April 2013, resulting in complete tetraplegia "C8 AIS A complete tetraplegia" presented to our clinic in middle February 2015, with multiple stages 3 and stage 4 pressure ulcers. He had prior diversion colostomy for management of chronic sacral pressure ulcer. He was subsequently admitted in our hospital for management of the pressure ulcers by our team, with daily dressing and pressure relief. His wounds seemed to be clean with that regime.

He had blood investigations done on the day of admission as the other parameters affecting wound healing, including nutritional status, renal and liver status needed to be considered besides presence of pressure on the wound. His hemoglobin was 7.6g/dL, with borderline high white cell count, and with low

mean corpuscular volume (MCV) of 66.5 femtoliter and normal platelet count. Iron studies revealed serum iron 1.0µmol/L, total iron binding capacity (TIBC) 12.0µmol/L and serum ferritin 928.2µg/L. Serum transferrin saturation (TSAT) was 8.33%. No source of blood loss was identified. His creatinine and albumin level was tested about 10 days later, revealing low creatinine and low albumin levels, only 15g/L.

He was diagnosed by our team as having functional iron deficiency (FID) with anemia of chronic illness. Despite the low hemoglobin levels, he did not have symptoms. He was on high protein diet. Prior to this current admission, he had received allogeneic blood transfusion (ABT) to manage his anemia and he had been on oral iron supplement all the time along with other hematinics. During this admission, he was then planned for IV iron to facilitate iron availability for erythropoiesis. However, initial plans for IV Iron infusion was delayed to the following week due to concerns of possible reactions to IV Iron.

The following week, just prior to IV Iron infusion, hemoglobin levels had dropped to 5.6g/dL. Again no source of blood loss was revealed and patient had mild lethargy with no symptoms of cardio respiratory compromise. IV Iron sucrose 500mg over 3.5 hours was given and patient tolerated it well. As there were concerns over the low hemoglobin levels, ABT was ordered for the following 3 days, with a total of 3 pints of packed red blood cells (PRBC) given, with Iv frusemide between transfusion. A plan for the 4th pint of PRBC was aborted as patient developed fever. The changes evident in the results of full blood count (FBC) since his injury in 2013 till prior to discharge are illustrated in Figure (1).

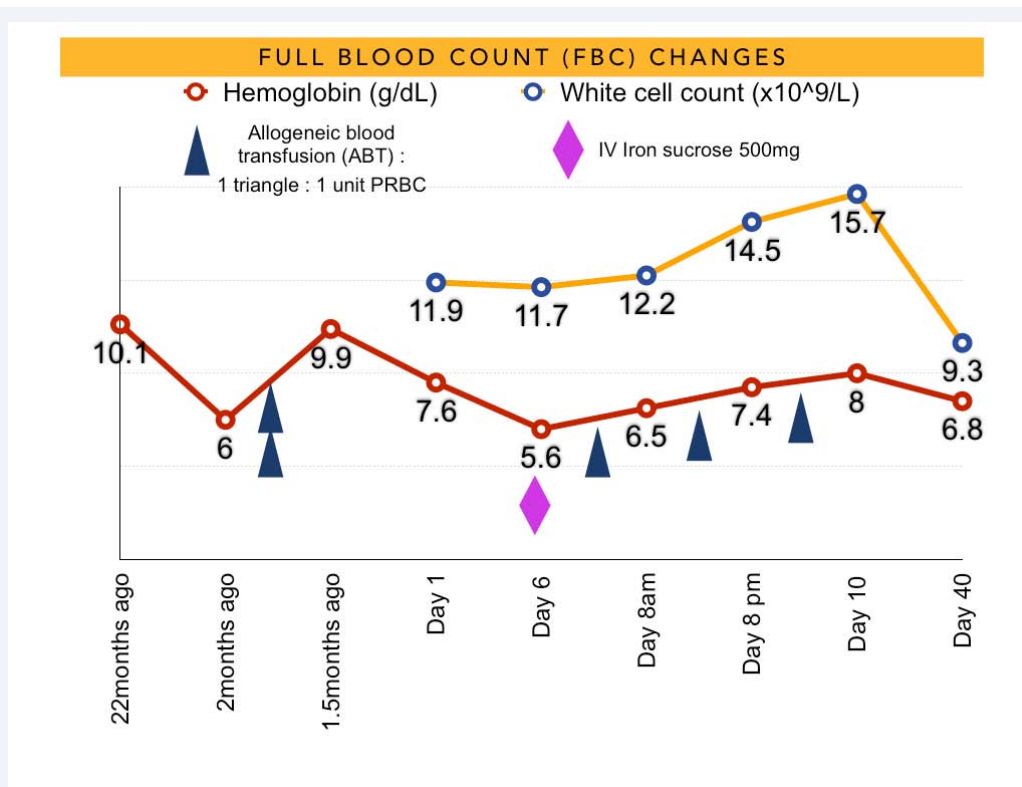


Figure 1 Full Blood Count Changes.

As a consequence of this management strategy, patient developed fluid overload with some breathlessness, his wounds evidently worsened and he required orthopedic team referral but was eventually conservatively managed. His hospital stay was prolonged (17/2/15-30/3/15). His hemoglobin upon discharge was still suboptimal and it illustrates the defeat in purpose of treating FID with oral hematinics or ABT.

DISCUSSION

As the case above illustrates, among the issue identified is that the current proper management strategies for anemia, namely FID is lacking. Firstly, anemia in hospitalized patients or those with chronic illnesses is not fully investigated. Secondly, if anemia is investigated and a patient is noted as having iron deficiency, it is either not promptly treated or inappropriately treated. We have noticed in this case which also reflects the general management of other similar patients, anemia was tolerated and oral iron was given despite the known poor absorption in FID. Oral iron seemed to provide a placebo effect on physicians, possibly making us comfortable that a treatment is advocated. Interestingly too we have so much of fear in using IV Iron despite the known safety and efficacy of the drug [1,2]. As such, in many instances we “miss the boat” of prompt and appropriate treatment, so to speak, causing us to be desperate to use ABT when hemoglobin levels fall. In this case the patient should have been given IV Iron early and adequately to replenish iron stores and also erythropoiesis stimulating agent (ESA) to accelerate erythropoiesis rather than ABT to correct anemia. It’s an interesting irony that IV iron and ESA are feared more than ABT.

As we know, both anemia and allogeneic blood transfusion increase morbidity and mortality [3]. The sum total of the burden it causes cannot be undermined as both anemia and inappropriate ABT reduces productivity, increases hospital stay and magnifies the burden of the patient and the healthcare system. As seen in this case, such management contributed to worsening of the wounds, prolonged hospital stay, reduced function and increased nursing and medical care. Unfortunately the vicious cycle of managing patients with IDA either inadequately or inappropriately will continue to wreck havoc as long as we continue with our current practices.

It is thus imperative that we consider seriously the early detection, investigation and proper management of anemia, namely IDA. Patients with anemia should have iron status checked and if showing evidence of FID, they should be treated with IV Iron and ESA where appropriate. We should not resort to ABT as a treatment for chronic anemia. This is where also the principle of Patient Blood Management (PBM) plays a big role in managing such patients well. “Patient Blood Management is the timely application of evidence-based medical and surgical concepts designed to maintain hemoglobin concentration, optimize hemostasis and minimize blood loss in an effort to improve patient outcome” [4]. In instituting PBM, the patient and his own blood is considered valuable and thus we would use different strategies to optimize the patient’s blood. It is patient-focused, rather than product focused and definitely more in line with our responsibility of doing no harm. It is hoped that this case, brings to our attention the perils involved with our current practice of managing anemia and paves the way for us to improve,

to the benefit of our patients and the healthcare system.

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