Recovery of hemoglobin after perioperative intravenous iron sucrose with low dose erythropoietin in total knee patients

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Background: There are many options for alternative methods of allogeneic blood transfusion (ABT) in surgery. Theoretically, erythropoietin with intravenous iron would fasten the recovery in acute anemic patients with cost-effectiveness. The object of this study is to investigate the short term effect of parenteral iron supplement with low dose erythropoietin for recovery of hemoglobin in unilateral total knee replacement arthroplasty (TKR).

Methods: This is a retrospective observational study. From Oct-2-2007 to Dec-21-2007, 82 consecutive patients underwent unilateral TKR in our hospital. Among them, 20 patients agreed to receive intravenous erythropoietin 2000 IU followed by parenteral iron sucrose 200 mg on the day before operation, operation day, and postoperative 1 day (Group E). As a control group, another 50 patients were selected after exclusion from 62 patients (Group C). The reasons of exclusion were too high or too low preoperative hemoglobin in 6 patients, use of postoperative blood salvage system in 5 patients and previous use of erythropoietin in one patient. The decision of transfusion was made by physician based on patient’s status and hemoglobin level. Ethical permission was given by the institutional review board and informed written consent was obtained from all participants.

Results: There were no significant differences in demographic, preoperative hemoglobin, hematocrit, CRP levels or amount of estimated blood loss between two groups. The mean amount of ABT is lower in Group E (1.7±0.6 vs. 2.8±0.8 units, p < 0.01) without significant different hemoglobin levels on postoperative 7 day (11.3±1.1 vs. 11.6±1.3 g dL-1, p=.22). CRP level on day 7 showed slightly higher level in group E (2.6±2.2 vs 1.5±1.0 mg/dL, p=0.03). There was no significant adverse effect or complication in both groups.

Conclusion: Perioperative low dose erythropoietin with parenteral iron for unilateral TKR patients was effective to improve hemoglobin levels with less ABT in this observational study. Erythropoietin with parenteral iron might be the option for saving allogeneic blood transfusion. But larger randomized study would be necessary to confirm this finding.

Splenic infarction associated with by massive splenomegaly due to autoimmune hemolytic anemia (AIHA).

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AIHA is commonly combined with splenomegaly in AIHA patients. Splenic infarction can be caused by hematologic disease such as leukemia, lymphoma, myelofibrosis and sickle cell disease. Splenic infarction can also be associated with endocarditis and AF. However, splenic infarction can not be seen often in patient with splenomegaly in AIHA patients. Here we report on the rare case of splenic infarction associated with massive splenomegaly in patient with AIHA and IDA. CASE: A 44 year old woman was admitted to our hospital due to pancytopenia. The initial laboratory Results showed Hb 3g/ dl, WBC 2460/ul and corrected reticulocyte 0.049%. Her liver function test was normal. Her iron profile was as below, ferritin 8 ng/ml, serum iron 22 ug/dl and UIBC 325 ug/dl. Therefore, iron defiency anemia was diagnosed. She had no fever and EKG was normal. Anti-nuclear antibody and rheumatoid factor were negative. PRC was given to her and after 15 days of treatment with iron supplement, her Hb was elevated to 8g/dl. An abdominal CT was performed to rule out GI bleeding. Except for splenomegaly, An abdominal CT showed no abnormal findings. A bone marrow examination was performed and showed no abnormal findings. The cause of splenomegaly was not found at that time and she was discharged from hospital. After 3 days, she revisited the ER due to LUQ pain. The initial CBC was not changed compared with that of the day of discharge which was Hb 7.4 g/dl, WBC 5420/ul(ANC 4173) and Plt was 87k/ul. But her corrected reticulocyte was elevated to 2.08. A Direct Comb’s Test was positive and haptoglobin was 1 mg/dl, LDH was 144 These findings were compatible with AIHA. Initially, her AIHA was thought to be masked by severe IDA. An abdominal CT was taken again due to severe LUQ pain and revealed splenic infarction in addition to massive splenomegaly. Because other diseases that can cause occur splenic infarction were excluded, it is thought that splenic infarction in this patient was caused by massive splenomegaly. She was underwent splenectomy because of severe LUQ pain. After splenectomy, the patient’s pancytopenia was improved and her LUQ pain was subsided.