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DRUG RELATED PROBLEM ASSOCIATED WITH THE TREATMENT FOR SEVERE ANEMIA WITH KIDNEY TRANSPLANTATION'S HISTORY IN PGI CIKINI HOSPITAL

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ABSTRACT

Anemia is a condition that develops when blood lacks enough healthy red blood cells or hemoglobin. Hemoglobin is a main part of red blood cells and binds oxygen. Anemia may also be diagnosed where there is decreased oxygen-binding ability of each hemoglobin molecule due to deformity or lack in numerical development as in some other types of hemoglobin (Hb) deficiency. Mr. PA, 72 years old was diagnosed with severe anemia. This diagnosis based on examination of Hb that is very low at 5,29/dL (normal 12-14 g/dL). Patients have had a kidney transplant in 2004 and also had type 2 diabetes , until now he is still using insulin. During hospitalized, he has received 17 types of drugs, those were Claforan (cefotaxime), Folic Acid, Neurobion 5000, Rocer (omeprazole), Imuran (azathioprine), Urdahex (ursodeoksilat acid), Kalmethason (dexamethasone), Actrapid (insulin), Normal Saline 0,9%, Mycostatin (nystatin), Myfortic (mucophenolic acid), Cavit D3, Calcium gluconas, Cefixime, Cetirizine, Codipront, and Heparin. Giving many drugs (polypharmacy) certainly is not recommended, but in this case the treatment according to the patient condition. Based on the result of the clinic secretariat at the ward of K in PGI Cikini Hospital, it could be concluded that there was DRPs (*Drug Related Problems*) such as drug interaction, adverse drug, improper drug selection, and untreated indications. Adverse Drug Reactions was caused by concomitant administration of immunosuppressant drugs that Imuran, Myfortic and Kalmethason.

Use of these drugs may suppress excessive immune responses to facilitate the onset of infection and candidiasis. Using erythropoietininjection is essential for the treatment of cases of severe anemia.

KEY WORDS: Drug Related Problems, severe anemia , kidney transplatation, PGI Cikini Hospital

INTRODUCTION

Anemia is a condition that develops when blood lacks enough healthy red blood cells or hemoglobin. Hemoglobin is a main part of red blood cells and binds oxygen. Anemia may also be diagnosed where there is decreased oxygen-binding ability of each hemoglobin molecule due to deformity or lack in numerical development as in some other types of hemoglobin (Hb) deficiency.

There are many types of anemia. All are very different in their causes and treatments. Iron-deficiency anemia, the most common type, is very treatable with diet changes and iron supplements. Some forms of anemia, like the anemia that develops during pregnancy are even considered normal. However, some types of anemia may present lifelong health problems.

The symptoms of anemia vary according to the type of anemia, the underlying cause, the severity and any underlying health problems, such as hemorrhaging, ulcers, menstrual problems, or cancer. Specific symptoms of those problems may be noticed first. Symptoms common to many types of anemia include the following easy fatigue and loss of energy, unusually rapid heart beat, particularly with exercise, Shortness of breath and headache, particularly with exercise difficulty concentrating, dizziness, pale skin, leg cramps and insomnia. Other symptoms are associated with specific forms of anemia . This paper will be evaluated of treatment of severe anemia patient with a history of kidney transplantation at PGI Cikini Hospital.

2. Methodology

The case studies was conducted to the patient on K-Unit based on the length of patients treated. The evaluation was done based on the data of drug use, include drug name, dosage and mode of administration and rationalization of the use of the drug (the right dose, the right indication, the right patient, the right of use) with see Drug Related Problems of drug use based on the literature.

3. Case Presentation

Mr. PA, 72 years old was diagnosed with severe anemia. This diagnosis based on examination of Hb that is very low at 5,29/dL (normal 12-14 g/dL). Patient has a kidney transplant in 2004 and also had type 2 diabetes, until now he was still using insulin.

4. Clinical Evaluation

During hospitalized, he has received 17 types of drugs. On the first day to the fifth day Mr. PA received the treatment of 10 type of treatment, they were Claforan (cefotaxime) as an antibiotic because of the results of examination seen the abnormal number of leukocytes and leukocyte types, Folic acid as a therapy for anemia, Neurobion 5000 (vit. B1, B6, B12) as an adjunctive therapy for vitamin deficiency, Rocer (omeprazole) for the treatment of gastric ulcers, Imuran (azathioprine) as an immunosuppressant for the patient with kidney transplantation, Urdahex (ursodeoksilat acid) as therapy of cholelithiasis (gallstones), Kalmethasone (dexamethasone) for immunosuppressive therapy, Actrapid (insulin) for diabetes therapy, Heparin as an anticoagulant to prevent thrombus, Normal Saline 0,9% as therapy of sodium and chloride (electrolytes) as at the electrolyte examination showed a low sodium values.

Subsequent treatment at the sixth to eighth day, he has received an additional 5 types of drugs are Mycostatin (nystatin) for the treatment of candidiasis. Mr. PA has received additional immunosuppressive i.e. Myfortic (mycophenolic acid). Giving of Myfortic could cause candidiasis, so the patient was given Mycostatin [5]. Cavit D3 as an additional supplement to the patient because calcium values was below the normal, that only about 6,2 – 7,8 mEq/dL. The patient also was given Ca. gluconas as a supplement that may increase the endurance and additional prescription cough medicine, Codipront.

On the ninth day and tenth day patient was treated with Cefixime as the treatment of infections and Cetirizine as an allergies therapy . Besides to pharmacological therapy, Mr. PA also got a non-pharmacological therapy such as diet 1900 calories, 40 gr of soft protein of 6 egg whites, low fat and low potassium to support the pharmacological treatment and helping patient for recovery.

5. Result of the Laboratory

The results of examination of several hematological parameters on the first day showed the abnormality those are, Hb value 5,1 g/dL (normally 12 - 14g/dL), the number of

erythrocytes 2,4 10^3µL (normally 4 – 4,5$10^3$µL), hematocrit 22%, (normally 37-43%), reticulocyte 44/mil (normally 5 - 15/mil), eosinophil and neutrophil 0% (normally : eosinophil 1-3%; neutrophils 2-6%), and aPTT 65 seconds (normally 26,4 – 37,5 seconds). The result of examination of peripheral blood on the sixth day until tenth day showed the abnormality for Hb value, leukocyte, eristrocytes, hematocrit, eosinophil, lymphocyte and neutrophil.

The examination of blood pressure in patient of Mr. PA the values are varied. At the first day when he came to Hospital, the patient's blood pressure was only 70/57 mmHg (at 04.00 o'clock), 90/60mmHg (at 12.00 o'clock), 112/56mmHg (at 20.00 o'clock). Following day, the systolic blood pressure could be normal, but of the pressure of systolic was very lowed, ranging from 62 - 68 mmHg, but in the third day and fourth day, the systolic blood pressure showed an increase, above 120mmHg, but the diastolic pressure still remains below the normal values. While the patient's blood pressure in the next day has shown a significant improvement that was at the normal values.

Blood sugar of patient was treated in PGI Cikini Hospital for 10 days showed a very high values (abnormal). Similarly bilirubin values that were examined on the fourth day showed a high value. Electrolyte value that is sodium showed a lower value than the normal value (135-147 mEq/L) is 130mEq/L, 127mEq/L, and 132mEq/L. The same was shown in the calcium values less than normal values (8,8 – 10,3 mEq/L) are 7,8 mEq/L, 6,8 mEq/L, and 6,3 mEq/L. But in potassium showed the high values (3,5 – 5,0 mEq/L) are 5,2 mEq/L, 5,1 mEq/L, and 5,2 mEq/L.

6. Drug Related Problem (DRP)

6.1. Drug Related Problem (DRP) I : Adverse Drug Reaction

Adverse Drug Reactions was caused by using concurrent of immunosuppressant drugs that were Imuran (azathioprine), Myfortic (mycophenolic acid) and Kalmethason (dexamethasone). Giving the three types of immunosuppressantsat the same time can suppress the immune system so facilitate the occurrence of infections and candidiasis. Beside, using Cetirizine with Codipront that was contain codeine may increase side effects such as dizziness, drowsiness and difficulty concentrate. The used of both drugs work on CNS cause additive and decreasing of conscious.

6.2. Drug Related Problem (DRP) 2 : Failure to receive drug

Patient did not receive Cefixime on the ninth day because the drug was not available.

6.3. Drug Related Problem (DRP) 3: Improper drug selection

Using antibiotic of same group, Cefixime and Claforan (cefotaksime). Cefixime and Cefotaximeare are third generation of cephalosporine. Using simultaneously of three types of immunosuppressants there are Imuran (azathioprine), Myfortic (mycophenolic acid) and Kalmethason (dexamethasone) of high doses can cause infection and candidiasis.

6.4.Drug Related Problem (DRP) 4: Untreated Indication

Patient did not get Eritropoetin and $CaCO_3$.. Eritropoetin is the substitute hormone that produced by the kidney to produce eritrocytes. $CaCO_3$ role in helping kidney function in removing phosphorus from the body.

6.5. Drug Related Problem (DRP) 4: Drug Interaction

There were several interactions, Rocer (Omeprazole) with Folic acid, Cefixime with Myfortic (mycophenolic acid), Cetirizine with Codipront, Imuran (azathioprine) with Myfortic (mycophenolic acid) and Kalmethason, Cefixime with Myfortic (mycophenolic acid), Kalmethason with Actrapid (insulin) and Myfortic (mycophenolic acid) with the food. Rocer (omeprazole) may interfere the absorption of Folic acid, therefore the use of these drugs could be given at the different time. Kalmethason containing dexamethason that is a glucocorticoid can interfere with blood sugar control and reduce the effectiveness of insulin Actrapid.

Cefotaxime could decreased levels of mycophenolic acid in the blood and the effects of mycophenolic acid (Myfortic) too. Theoretically, the drugs that alter flora gastrointestinal (e.g., antibiotics) may reduce the bioavailability of mycophenolic acid. Using mycophenolic acid (Mycophenolic) on an empty stomach 1 hour before or 2 hours after a meal or as directed by your doctor. The food may reduce the absorption of mycophenolic acid. Didn't crush, chew, or cut the tablet. The tablet has a special coating to protect the stomach from iritation.

CONCLUSION

Based on the result of the practice of clinic secretariat at the ward of K at PGI Hospital Cikini, it can be conclude that there was DRPs (*Drug Related Problems*) such as Adverse

Drug Reactions, Failure to receive medication, improper drug selection, untreated indication and Drug Interaction

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