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CASE REPORT

PRE-OPERATIVE ASSESSMENT ON A PATIENT FOR LAPAROSCOPIC CHOLECYSTECTOMY WITH B12 ANEMIA

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Abstract

The pre-operative assessment is an opportunity to identify co-morbidities that may lead to patients' complications during the anesthesia, surgical or postoperative period. Patients scheduled for elective procedures will generally attend a pre-operative assessment 2-4 weeks before the date of their surgery. A woman at the age of 57 years was admitted to the hospital planned for the elective laparoscopic cholecystectomy. On the preoperative assessment on laboratory analysis, we found presence of anemia with MCV levels above normal and low levels of vitamin B12. She was never treated for anemia before. Peripheral blood smear showed presence of macrocytosis. The patient was put on treatment with intramuscular injections of vitamin B12. The operation was delayed for two months. She was admitted to the hospital after two months of treatment and blood analysis were made that showed Hb levels of 115g/l, hematocrit 35%, MCV was 92. She was operated after she had been hospitalized, and laparoscopic cholecystectomy was made without complications. She was released from hospital two days after surgery. The purpose of a preoperative evaluation is not to "clear" patients for elective surgery, but rather to evaluate, and if necessary, implement measures to prepare higher risk patients for surgery. By diagnosing anemia in the preoperative assessment, we reduced the risk of complications during the surgery and during the postoperative period. Early identification and effective treatment of anemia has the potential to improve clinical outcomes in surgical patients.

Key Words: *anemia; B12 deficiency; cholecystectomy; laparoscopy; pre-operative assessment.*

Introduction

The pre-operative assessment is an opportunity to identify co-morbidities that may lead to patients' complications during the anesthesia, surgical or postoperative period. Patients scheduled for elective procedures will generally attend a pre-operative assessment 2-4 weeks before the date of their surgery. A history and physical examination, focusing on risk factors for cardiac and pulmonary complications and a determination of the patient's functional capacity are essential to any preoperative evaluation (1).

Laparoscopic cholecystectomy has become a gold standard procedure since its introduction in the late 1980s and is now used worldwide as a treatment for cholelithiasis. Elective laparoscopic cholecystectomy is performed routinely as day-case surgery and is generally considered safe operation. However, despite the advances in technology, the complications associated with laparoscopic cholecystectomy remain the same. Iatrogenic perforations of a gallbladder was the most common complication, and postoperative complications are bleeding from abdominal cavity, biliary duct leaks and infection of surgical wounds (2-4).
The perioperative anemia has been associated with increased risk of red blood cell transfusion and increased morbidity and mortality after surgery. In patients with pre-operative B12 anemia perioperative treatment with vitamin B12 injection reduces the need for intra and postoperative blood product transfusion. Laboratory examinations such as full blood count and MCV together with periphery blood smear are necessary for distinguishing types of anemia and implementing the right treatment. The optimal time frame to begin treating preoperative anemia before surgery is scheduled, ideally at least 3 to 4 weeks in advance (5).

Case report

A woman at the age of 57 years was admitted to the hospital planned for the elective laparoscopic cholecystectomy. At the admission, a new abdomen ultrasound was made that showed her gallbladder was filled with concrements and intrahepatic and extrahepatic bile ducts weren't dilated. She had acute cholecystitis attacks two times in the last five years, and she was treated with conservative treatment. Laboratory findings showed anemia with hemoglobin levels of 83g/l, hematocrit level of 26%, MCV 119, other laboratory parameters including transaminase levels and bilirubin levels were normal. We found that previous laboratory analysis that were made in 2023 also showed low hemoglobin levels of 95g/L, hematocrit levels of 26%, MCV 117fl, and she was not treated for anemia. She was only talking pills for hypothyroidism. We took blood levels of B12 vitamin and they came back low 104.6pg/ml. We also sent peripheral blood smear to the Clinic of Hematology, and the result showed presence of macrocytosis. In consultation with the hematologist we put the patient on a treatment with B12 1000mcg IM once daily for 10 days, then three times a week for three weeks and then once a month together with Folic Acid tablets 5mg once a day. The operation was delayed for two months. She was admitted to the hospital after two months. Blood analysis was made that showed Hb levels of 115g/l, hematocrit 35%, MCV was 92fl. She was operated next after she had been hospitalized, and laparoscopic cholecystectomy was made without complications under general anesthesia with the use of induction agents such as propofol and benzodiazepine. Muscle relaxant was also added. She was released from hospital two days after the surgery.

Discussion

The purpose of a preoperative evaluation is not to "clear" patients for elective surgery, but rather to evaluate and, if necessary, implement measures to prepare higher risk patients for surgery. Pre-operative outpatient medical evaluations can decrease the length of hospital stay, as well as

minimize postponed or cancelled surgeries. A patient presenting without an established medical diagnosis is not necessarily healthy (6,7). Preoperative evaluation should seek to determine absolute contraindications to laparoscopy, such as inability to tolerate pneumoperitoneum and complications associated with anesthesia. Vitamin B12–deficiency anemia, also known as cobalamin deficiency, is a condition that develops when the body can't make enough healthy red blood cells because it doesn't have enough vitamin B12. Symptoms may include tingling feelings or pain, trouble walking, feeling tired, uncontrollable muscle movement, confusion, slower thinking, mood or mental changes such as depression or irritability, problem with smell or taste, mouth ulcers diarrhea and weight loss, glossitis. The causes of B12 anemia are lack of intrinsic factor, drinking too much alcohol, stomach surgery, ulcerative colitis, Crohn disease, vegetarian diet, atrophic gastritis, drug induced megaloblastic anemia such as anemia caused by hydroxyurea, metformin, methotrexate. Treatment of B12 anemia is based on intramuscular treatment with B12 injection (8-10).

Conclusion

The perioperative assessment is important for reducing the postoperative complications in abdominal surgery. Clinical history, preoperative questionnaires, physical examination, routine tests, individual risk-assessment are necessary for reducing the postoperative complications. All the necessary examinations and evaluations were done on our patient and that was important because we discovered medical conditions for which the patient was not treated before. Operation was delayed and then was performed when the patient’s comorbidities were adequately treated. In that way we reduced the complications during the surgery and during the postoperative period. Early identification and effective treatment of anemia has the potential to improve clinical outcomes in surgical patients.

References:

1. A Zambouri. Preoperative evaluation and preparation for anesthesia and surgery. Hipokratia 2007 Jan-Mar; 11(1): 13-21.
2. Liljana Gvozdenovic, Vladimir Pilija, Sasa Milic, Dejan Ivanov, Radovan Cvijanovic, Vesna Pajtic. Preoperative evaluation in the era of laparoscopic surgery. Med Glas(Zenica), 2013 Feb;10(1):167-70.
3. Lucocq, James MBChB; Scollay, John MPhil, FRCS; Patil, Pradeep MD. Defining prolonged late of stay(PLOS), following elective laparoscopic cholecystectomy and derivation of a preoperative risk score to inform resource utilization, risk stratification and patient consent.Annals of Surgery 277(5):p e1051-1055, May 2023.
4. Miodrag Radunovic, Ranko Lazovic, Natasa Popovic, et al. Complications of laparoscopic cholecystectomy: Our Experience from a Retrospective Analysis.Open Access Maced J Med Sci 2016 Dec 15.
5. Yulia Lin. Preoperative anemia screening clinics. Hematology Am Soc Hematol Educ Program 2019 Dec 6; 2019(1): 570–576.

6. Dennis M. Bierle, MD,. David Raslau, MD, Dennis W. Regan, MD, Karna K. Sundsted, MD, Karen F. Mauck, MD.Preoperative Evaluation Before Noncardiac Surgery. THEWHEMATIC REVIEW ON PERIOPERATIVE MEDICINE Volume 95, Issue 807-822April 2020.
7. 7.Thompson A, Fleischmann KE, Smilowitz NR, et al. 2024 AHA/ACC/ACS/ASNC/HRS/SCA/SCCT/SCMR/SVM Guideline for Perioperative Cardiovascular Management for Noncardiac Surgery: A Report of the American College of Cardiology/American Heart Association Joint Committee on Clinical Practice Guidelines. JACC. Sep 24, 2024.
8. Yulia Lin. Preoperative anemia screening clinics. Hematology Am Soc Hematol Educ Program 2019 Dec 6; 2019(1): 570–576.
9. Saikat Mandal, Debra L.Smith, Pelletier J.Peter, et al. Perioperative anemia management. Annals of Blood Vol 8, September 30,2023.
10. Hans GA, N Jones MB Bch BA (Hons). Preoperative anaemia. Continuing education in Anaesthesia, Critical Care and Pain, 2013,Vol3;133.