



Case Report

Spine tumor resection among patients who refuse blood product transfusion: a retrospective case series[☆]



Alexandra E. Kisilevsky MD, PhD, FRCPC (Clinical Instructor)^a,
Liam Stobart MD (Resident)^a, Kristine Roland MD, FRCPC (Clinical Assistant Professor)^b,
Alana M. Flexman MD, FRCPC (Clinical Assistant Professor)^{a,*}

^aDepartment of Anesthesiology, Pharmacology and Therapeutics, University of British Columbia, Vancouver, British Columbia, Canada

^bDepartment of Pathology and Laboratory Medicine, University of British Columbia, Vancouver, British Columbia, Canada

Received 21 January 2015; revised 15 July 2016; accepted 9 August 2016

Keywords:

Spine surgery;
Tumor;
Jehovah's witness;
Blood conservation;
Outcomes

Abstract

Study objective: To describe the perioperative blood conservation strategies and postoperative outcomes in patients who undergo complex spinal surgery for tumor resection and who also refuse blood product transfusion.

Design: A retrospective case series.

Setting: A single-center, tertiary care and academic teaching hospital in Canada.

Patients: All adult patients undergoing elective major spine tumor resection and refusing blood product transfusion who were referred to our institutional Blood Utilization Program between June 1, 2004, and May 9, 2014.

Measurements: Data on the use of iron, erythropoietin, preoperative autologous blood donation, acute normovolemic hemodilution, antifibrinolytic therapy, cell salvage, intraoperative hypotension, and active warming techniques were collected. Data on perioperative hemoglobin nadir, adverse outcomes, and hospital length of stay were also collected.

Main results: Four patients who refused blood transfusion (self-identified as Jehovah's Witnesses) underwent non-emergent complex spine surgery for recurrent chondrosarcoma, meningioma, metastatic adenocarcinoma, and metastatic malignant melanoma. All patients received 1 or more perioperative blood conservation strategy including preoperative iron and/or erythropoietin, intraoperative antifibrinolytic therapy, and cell salvage. No patients experienced severe perioperative anemia (average hemoglobin nadir, 124 g/L) or anemia-related postoperative complications.

Conclusions: Patients who decline blood product transfusion can successfully undergo major spine tumor resection. Careful patient selection and timely referral for perioperative optimization such that the risk of severe anemia is minimized are important for success.

© 2016 Elsevier Inc. All rights reserved.

[☆] Disclosures: The authors have no conflicts of interest to disclose. Dr Alana Flexman is supported by a Vancouver Acute Department of Anesthesia Research Merit Award.

* Correspondence: Alana M. Flexman, MD, FRCPC, Department of Anesthesiology, Pharmacology and Therapeutics, University of British Columbia, Vancouver General Hospital, Room 2449 JPP 899 West 12th Avenue, Vancouver, BC, Canada V5Z 1M9. Tel.: +1 604 816 7520; fax: +1 604 875 5209.

E-mail addresses: Sandy.Kisilevsky@vch.ca (A.E. Kisilevsky), liamstobart@gmail.com (L. Stobart), kristine.roland@vch.ca (K. Roland), alana.flexman@vch.ca (A.M. Flexman).

1. Introduction

A growing body of evidence associates the transfusion of red blood cells with increased risk of morbidity and mortality [1-4]. The potential mechanisms for these effects include immunomodulatory, infectious, circulatory overload, and allergic complications. In addition, blood products are costly and may be of limited supply. To minimize the potential need for perioperative allogeneic blood transfusion, blood conservation strategies have been developed to optimize the management of elective surgical patients who are at risk for significant blood loss. Successful strategies include correction of preoperative anemia, intraoperative use of antifibrinolytic agents, cell salvage, and advances in surgical technique [5-8]. "Bloodless surgery" programs use such evidence-based techniques perioperatively in an attempt to avoid the risks of blood transfusion and improve patient outcomes. The Blood Utilization Program (BUP) at Vancouver General Hospital was established with this aim in 2004. Despite these advances, blood transfusion remains the primary treatment of severely anemic patients at risk for tissue ischemia and end organ damage.

Surgical patients may refuse blood product administration for a variety of personal or religious reasons. Jehovah's Witnesses (JWs) are a group of practicing Christians who refuse blood product transfusion based on several biblical passages which they interpret as God's command to abstain from blood [9]. They have a current population in excess of 7 million and are active in approximately 230 countries [10]. As patients, they pose unique challenges to the perioperative team particularly when significant intraoperative bleeding is anticipated. The successful management of these patients has been described for multiple types of procedures associated with significant blood loss including cardiac, hepatobiliary, and orthopedic surgeries [11-14]. In spite of blood conservation measures, however, patients who refuse blood product administration remain at risk for severe perioperative anemia and associated adverse sequelae [15].

Prolonged spinal surgery and tumor resection are well-documented independent risk factors for significant intraoperative bleeding [16,17]. Several case reports have described excellent clinical outcomes in JW patients undergoing major non-spinal tumor resection. These include an extended hemipelvectomy for malignancy [18], an en bloc tumor resection and right-sided nephrectomy for a giant retroperitoneal paraganglioma [19] and a partial hepatectomy for a giant hemangioma [20]. Descriptions of JWs undergoing complex spine surgery for reasons other than tumor resection are also available but limited. A case series of 19 JWs undergoing spinal fusion for deformity correction at a single institution in New York demonstrated good radiographic and clinical outcomes [21]. The successful use of hypotensive anesthesia was described over 20 years ago in a case series of 12 JW patients undergoing scoliosis correction [22]. None of these publications, however, specifically addressed the management of complex spinal tumor surgery in patients who refuse blood product

administration. A single case series of 19 JWs undergoing neurosurgical procedures (including 2 patients for cervical spinal tumor excision) in sub-Saharan Africa described the intraoperative management and outcomes in these cases [23], but the generalizability of these findings is limited to resource-poor countries. Despite the risk of significant intraoperative bleeding during resection of spine tumors, a paucity of literature exists to guide management of these cases when blood product administration has been refused. In this case series, we describe the management of 4 patients who underwent major resection of spine tumors and who declined blood product transfusion at our institution.

2. Materials and methods

We obtained approval from the University of British Columbia Research Ethics Board and the Vancouver Coastal Health Authority before commencement of the study (no. V14-01007) with a waiver for informed consent.

2.1. Institutional blood utilization program

Vancouver General Hospital is a tertiary academic teaching center and the major referral center for spine surgery in the province of British Columbia, Canada, serving a population of approximately 4 million people. The BUP at Vancouver General Hospital accepts referrals for adult patients undergoing elective surgery who are at increased risk for perioperative blood product transfusion. The criteria for referral to the program include baseline anemia (hemoglobin [Hgb], ≤ 125 g/L); a known coagulopathy (ie, hemophilia, von Willebrand); and major orthopedic, spine, or cardiac surgery as well as patients who have indicated that they will not accept blood product transfusion. Each patient's medical history and baseline blood work including Hgb, mean corpuscular volume, red cell distribution width, ferritin, iron, total iron-binding capacity, percent saturation, and/or reticulocyte count is reviewed by a staff BUP anesthesiologist. Based on this information, recommendations for preoperative blood conservation strategies are made at the discretion of the anesthesiologist. These include oral (PO) iron, intravenous (IV) iron, subcutaneous (SC) erythropoietin, and autologous blood donation. Dosing of preoperative interventions is standardized as follows: oral iron is dosed as ferrous fumarate 300 mg PO daily or twice daily, IV iron is dosed as 200 mg iron sucrose (first dose) and 300 mg iron sucrose for subsequent doses, and SC erythropoietin is dosed as 20,000 U per dose for patients ≤ 65 kg and as 40,000 U per dose for patients >65 kg. Subsequently, the BUP physician makes recommendations for intraoperative and postoperative blood conservation such as the use of cell salvage, antifibrinolytic therapy, acute normovolemic hemodilution (ANH), and continued use of iron and/or erythropoietin therapy. The final decision and implementation of intraoperative blood conservation strategies are made by the attending

Download English Version:

<https://daneshyari.com/en/article/5884403>

Download Persian Version:

<https://daneshyari.com/article/5884403>

[Daneshyari.com](https://daneshyari.com)