



BMH Med. J. 2021;8(2):92-94. **Case Report**

Total Knee Arthroplasty in a Haemophiliac Patient - The Anaesthetic Challenges

Priyanka Pavithran, Biju Sekhar

Department of Anaesthesiology, ASTER MIMS, Calicut, Kerala, India

Address for Correspondence: Dr. Priyanka Pavithran, Anugraha, Othayamangalam Road, Calicut - 673010, Kerala, India.

Abstract:

Background: Haemophilic patients develop chronic haemophilic arthropathy which needs joint replacement. Anaesthetic management of these cases is challenging and needs a multidisciplinary approach.

Case: Our patient was a case of severe haemophilia who was managed successfully with perioperative factor VIII infusions. Intraoperative blood pressure was maintained at baseline levels and haemostasis was ensured. Postoperative analgesia was managed with intravenous patient controlled analgesia.

Conclusion: Management of haemophilic patients needs careful considerations. Postoperative analgesia is especially challenging due to limited options.

Keywords: Factor replacement, Haemophilia, Total knee replacement

Introduction

Successful perioperative management of patients with Haemophilia requires multidisciplinary care. Strict haemostasis and close monitoring of the coagulation factor levels and factor infusions are needed. Here we describe our experience with a patient with severe Haemophilia A posted for total knee replacement.

Case report

A middle aged person was posted for total knee replacement (TKR). He was a known case of severe Haemophilia A. His factor VIII levels were <1% and he did not have inhibitors to Factor VIII. His laboratory parameters were normal except for prolonged activated partial thromboplastin time. After multidisciplinary discussion he was taken up for surgery with adequate Factor VIII availability ensured. Blood products were also arranged. On the morning of surgery he was given 4000 IU of Factor VIII and his blood levels rose to 128%. Our anaesthetic plan was general anaesthesia. Intravenous access was obtained with caution on the non-dominant arm and general anaesthesia was

administered according to the institutional protocol. A size 4 I-gel was placed with sufficient lubrication to avoid mucosal injury. Intraoperatively, analgesia was supplemented with Inj. Paracetamol and Fentanyl infusion. Blood pressure was maintained at preoperative levels. The surgery was completed with blood loss expected of a normal TKR. Haemostasis was ensured after deflating tourniquet before closure. Thromboprophylaxis was maintained in the perioperative period with intermittent pneumatic compression. Postoperative pain was managed with intravenous patient controlled analgesia with fentanyl and intravenous paracetamol. Following surgery he was given Factor VIII injections as per the protocol. He made an uneventful recovery and was discharged on tenth postoperative day. The consent for publication of the details of the case was obtained.

Discussion

Haemophilia is a X-linked recessive congenital disorder which manifests as varying levels of deficiency in production of Factor VIII (Haemophilia A) or Factor IX (Haemophilia B). Haemophilia A can be classified as mild (5-40%), moderate (1-4%) or severe (<1%) depending on the levels of the factor in plasma. Normal plasma level of Factor VIII is 0.5-1.5 IU/dL or 50-150%. [1] Patients should always be screened for presence of inhibitors to Factor VIII and such patients will require other strategies to normalise the coagulation. The optimal perioperative Factor VIII levels recommended by the World Federation of Hemophilia is given in **Table 1**. [2]

Table 1: Peak plasma factor levels and duration of administration
(Excerpted from WFH Guidelines for management of Haemophilia A)

Major surgery		
	Desired level(IU/dL)	Duration(days)
Pre- op	80-100	
	60-80	1-3
Post - op	40-60	4-6
	30-50	7-14
Minor surgery		
	Desired level(IU/dL)	Duration(days)
Pre- op	50-80	
Post - op	30-80	1-5

Anaesthetic management of a Hemophilia patient for TKR is challenging and needs a multidisciplinary team. Dose of Factor VIII to be transfused to achieve a desired factor level can be calculated by the formula, body weight * desired Factor VIII level in IU/dL * 0.5. [1] The intraoperative concerns starts with careful placement of intravenous cannula and smooth laryngoscopy and airway manipulation to avoid mucosal bleeding. [3] Endotracheal tubes, nasopharyngeal probes and Ryle's tube should be well lubricated. Intramuscular injections and arterial cannulations should be avoided. Hypotensive anaesthesia should not be used. [4] There are reports of central and peripheral neural blocks, but can be risky in these patients. [5] Pharmacologic thromboprophylaxis should be avoided. Adjunctive therapies like tranexamic acid and epsilon amino caproic acid can be used to control bleeding. Tourniquet should be released and haemostasis ensured before closure is started. [6] Non steroidal anti-inflammatory drugs should not be used.

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