Abstract

Over the past decade, the usage of low molecular weight heparin (LMWH) perioperative therapy, which can be safely managed in an outpatient setting, has increased. The ACCP now recommends all high-risk patients receive either a LMWH or UFH perioperative anticoagulation regimen. This shift has occurred because both LMWH and UFH have comparable adverse outcomes when used for perioperative bridging.

Methods:

A PubMed search was performed to collect literature from the past ten years pertinent to the development of LMWH as an acceptable outpatient bridging therapy for MHV patients undergoing non-cardiac surgery. The rationale for our proposed protocol is discussed below.

Case Report

A 29-year-old man presented to the Otolaryngology clinic of an academic tertiary care center with symptoms of sleep-disordered breathing, recurrent episodes of upper airway obstruction, difficulty swallowing, and muffled voice. His medical history was significant for an episode of B streptococcal tonsillitis that led to endocarditis necessitating mitral valve replacement with a MHV three years prior to presentation. He is now connected to lifelong anticoagulation with warfarin therapy (INR goal range of 2.0 to 3.5). He also complained of baseline difficulty swallowing due to the endocarditis which became acute in its tone as well as baseline muffled (‘hot potato’) voice. Physical exam was notable for 4+ palatine tonsils that were very bulky and obviously partially obstructed the oropharyngeal airway. The remainder of his physical exam revealed no other major contributing factors to upper airway obstruction or dysphagia. After extensive literature search and consultation with the patient’s cardiologist and anticoagulation clinic staff, a protocol was adapted from the current literature accounting for the biphasic bleeding risk of tonsillar surgery and the safety of outpatient LMWH therapy in patients with MHV.

The patient had his warfarin beginning six days prior to surgery, and was admitted to the inpatient observation unit for hospitalization (inpatient UFH therapy) while his PTT was elevated. Observation continued in the inpatient setting with a PTT goal of 1.5 to 2.5 times control. For patients with normal discontinuation, LMWH was administered at a standard dose of 1.5 mg/kg given every 12 hours for 12 hours. This regimen was shown to be relatively safe, although not as effective as the therapeutic window of 1.5 to 2.5 times control. For patients who do not experience any bleeding or other complications.

Discussion

A PubMed search using the terms ‘anticoagulant’ and ‘tonsillectomy’ produced only one pertinent reference, a report by McMahan et al, on the use of LMWH in the perioperative period for tonsillectomy. In 2007, Cole et al reported on a 28-year-old male with antiphospholipid syndrome on chronic VKA therapy who underwent uncomplicated tonsillectomy after preoperative normalization of the INR (to 1.5-2.0) and discharge on postoperative day seven taking warfarin and LMWH until INR was therapeutic. She did not experience post-operative hemorrhage. A PubMed search was also performed to collect literature from the past ten years pertinent to the development of LMWH as an acceptable outpatient bridging therapy for MHV patients undergoing non-cardiac surgery. The rationale for our proposed protocol is discussed below.

LMWH vs. UFH:

Anticoagulation with IV drip UFH requires intravenous access, increases the risk of postoperative hemorrhage and its associated morbidity. The ACCP recommends a hybrid of the accepted guidelines for perioperative bridging therapy for tonsillectomy.

Postoperative Management:

The evidence and guidelines for when to resume anticoagulation postoperatively are not uniform. The ACCP recommends considering the anticipated bleeding risk on a per patient and procedure basis rather than a single predetermined bridging strategy.14 TMV tonsillectomy, while a common procedure that is considered to have low risk of major complication, does have a prolonged postoperative bleeding risk which blunts the perceived advantages of using LMWH instead of UFH. The risk of a major hemorrhage is exceedingly low, incidence of postoperative hospitalization for high-risk tonsillectomy, especially perioperative hemorrhage, is relatively high. Tonsillectomy could thus be considered a moderate-to-high risk surgery in (frequent) postoperative bleeding surgeries. The ACCP recommendations report level 1C evidence that favors waiting 48-72 hours after surgery to initiate LMWH. Even with this wait, however, anticoagulant therapy is still resumed within the secondary bleeding risk period for tonsillectomy.

Mital et al replace places our patient in the high-risk category for tonsillectomy. Waiting to resume anticoagulation until 15 days post surgery has past would mean holding all anticoagulant therapy for up to 15 days after surgery. This would put the patient at unacceptable higher risk for a fatal thromboembolic event. This risk was far too great to allow any risk of postoperative bleeding in our tonsillectomy patient. Therefore, we resumed LMWH anticoagulation on postoperative day three. After resuming VKA therapy, the patient’s INR was expected to become therapeutic in approximately 3 days. We felt that resuming VKA on day seven following surgery was unlikely to put the patient at risk of a significant thrombotic event. The ACCP guidelines suggest LMWH be safety suspended after two consecutive days of therapeutic INR measurements.

Hospitalization:

LMWH bridging protocols generally suggest that a patient can be discharged on home therapy after the bleeding risk is minimized and therapy has been established, often within 24 hours of surgery for many procedures. The risk of bleeding in tonsillectomy is high-risk for life-threatening thromboembolic event when not anticoagulated. The protocol described above provides a hybrid of the accepted guidelines for perioperative bridging of anticoagulation for MHV patients with intutive adaptations for tonsillectomy and avoids lengthy hospitalization. Further study is needed to define the optimal protocol for this procedure.

Conclusion

This study documents the successful application of an alternative anticoagulation protocol in one patient who is high-risk for life-threatening thromboembolic event when not anticoagulated. The protocol described above provides a hybrid of the accepted guidelines for perioperative bridging of anticoagulation for MHV patients with intutive adaptations for tonsillectomy and avoids lengthy hospitalization. Further study is needed to define the optimal protocol for this procedure.