Oral healthcare providers are concerned with best practice management of patients prescribed coagulation-altering therapy during the perioperative/periprocedural periods for dental and oral surgery interventions. Recommendations can be based on medication pharmacology, coagulation factor levels/deficiencies, degree of clinical invasiveness, and patient comorbidities. Caution must always be used with concurrent use of medications that can affect different components of the clotting mechanisms and prompt diagnosis along with necessary intervention may be needed to optimize outcome. However, evidence-based data on management of anticoagulants during interventions is lacking. Therefore, clinical understanding and judgment are needed along with appropriate guidelines matching patient- and intervention-specific recommendations.

There are multiple systemic diseases that have an impact on coagulation, of which oral and maxillofacial surgeons must be cognizant. Recent evidence has supported the potential for both hypocoagulable and hypercoagulable states in patients with liver and kidney disease with an even less understood impact on prolonged bleeding in the oral cavity. These systemic diseases are not limited to diseases affecting the liver, kidney, and bone marrow; however, these diseases are common among the patient population and surgeons must be capable of making appropriate judgment and modifying care appropriately.

Platelet abnormalities result from a wide range of congenital and acquired conditions, which may be known or unknown to patients presenting for oral maxillofacial surgery. It is critical to obtain a thorough history, including discussion of any episodes of bleeding or easy bruising, to potentially discern patients with an underlying platelet disorder. If patients indicate a positive history, preoperative laboratory studies are indicated, with potential referral or consultation with a hematologist. Appropriate preoperative planning may reduce the risk of bleeding associated with platelet dysfunction, potentially avoiding serious perioperative and postoperative complications.
Hemophilia: What the Oral and Maxillofacial Surgeon Needs to Know

Julie Ann Smith

Hemophilia will be encountered in the oral and maxillofacial surgeon’s office. A thorough understanding of hemophilia is necessary to safely care for these patients. One must understand the severity of the patient’s hemophilia as well as whether or not inhibitors are present. The patient’s surgical management will be influenced by these two factors. In addition to the possible need to transfuse factors or desmopressin, special care must be taken perioperatively to avoid bleeding complications. This article reviews the overall management of hemophilia A and B as well as the specific perioperative management of these patients.

Hypercoagulable States: What the Oral Surgeon Needs to Know

Robert Bona

Thrombophilia or hypercoagulable conditions can be thought of as either inherited or acquired. The inherited disorders include deficiencies of antithrombin, protein C, or protein S or the common disorders of factor V Leiden and prothrombin G20210A gene mutation. All these disorders are inherited as autosomal dominant and predispose individuals primarily to venous thrombosis. Acquired thrombophilic conditions are seen in individuals with cancer, phospholipid antibodies, and a whole host of other conditions that alter endothelial function, change blood levels of coagulant or anticoagulant proteins, activate platelets, or have other effects on coagulation proteins, platelet function, or the endothelium.

Aspirin, Plavix, and Other Antiplatelet Medications: What the Oral and Maxillofacial Surgeon Needs to Know

Andre E. Ghantous and Elie M. Ferneini

Most patients with coronary artery disease and peripheral vascular disease are on long-term antiplatelet therapy and dual therapy. Achieving a balance between ischemic and bleeding risk remains an important factor in managing patients on antiplatelet therapy. For most outpatient surgical procedures, maintenance and continuation of this therapy are recommended. Consultation with the patient’s cardiologist, physician, and/or vascular surgeon is always recommended before interrupting or withholding this treatment modality.

Heparin and Lovenox: What the Oral and Maxillofacial Surgeon Needs to Know

Lisa Marie Di Pasquale and Elie M. Ferneini

For the oral and maxillofacial surgeon, many patients will be on heparin products during surgery. So far, there is no standardized approach to treating anticoagulated patients during oral and maxillofacial surgical procedures. When a patient is on heparin therapy, heparin may be stopped 4 to 6 hours before surgery and resumed once hemostasis is achieved, usually within 24 hours. If low-molecular-weight heparin is administered, the treatment is generally stopped at least 12 hours before surgery and then resumed in a similar fashion. Local measures are generally enough to provide adequate hemostasis.

Warfarin and Newer Agents: What the Oral Surgeon Needs to Know

Martin B. Steed and Matthew T. Swanson

The new direct oral anticoagulants-dabigatran etexilate, rivaroxaban, and apixaban-have predictable pharmacokinetic and pharmacodynamic profiles and are
alternatives to warfarin. However, many surgeons are wary of these drugs, as there is limited evidence on how to manage bleeding in patients taking them, and only recently has a specific antidote been developed to reverse their anticoagulant effect. Management of the newer agents requires careful adherence to primary measures of bleeding care, knowledge of their mechanism of action, and familiarity with the unapproved and untested reversal strategies that may be required in patients with life-threatening bleeding.

Topical Hemostatic Agents: What the Oral and Maxillofacial Surgeon Needs to Know 523
Patrick J. Vezeau

Hemostasis is a key step in safe and predictable surgery. Knowledge of normal blood clotting mechanisms and abnormal diathesis is necessary to anticipate potential problems during and after surgery. As an adjunct to bleeding control, topical hemostatic agents have long been used in all surgical disciplines. This article provides a brief review of hemostasis and a topical summary of different classes of topical hemostatic agents useful to oral and maxillofacial surgery, including indications and potential complications/side effects. This rapidly evolving field promises to yield future agents with increased efficacy, cost efficiency, and decreased complications.

Interventional Radiology and Bleeding Disorders: What the Oral and Maxillofacial Surgeon Needs to Know 533
Laura Gart and Antoine M. Ferneini

Endovascular techniques are essential for controlling acute head and neck bleeding that cannot be controlled by local or systemic measures. Detailed knowledge of the head and neck vascular anatomy, advances in catheterization techniques, and the availability of new embolic materials have improved the safety, efficacy, and predictability of these procedures. To improve patient safety, the oral and maxillofacial surgeon must be familiar with these techniques.

Blood Products: What Oral and Maxillofacial Surgeons Need to Know 543
Regina L. Landesberg and Elie M. Ferneini

Blood products are routinely used to manage various coagulation and hematological disorders. However, there is a debate in the medical literature concerning the appropriate use of blood and blood products. Oral and maxillofacial surgeons must have a basic knowledge and understanding of the various available products. A consultation with each patient’s hematologist is always advised in order to decrease the risk of adverse events and improve the patient’s safety.

Damage Control Resuscitation for Catastrophic Bleeding 553
Chase L. Andreason and Timothy H. Pohlman

The recognition and management of massive blood loss as a consequence of severe facial trauma or as a complication of complex oral and maxillofacial procedures pose formidable challenges. A patient who has lost substantial amounts of blood may still present in a deceptive clinical state that suggests stability, although oxygen delivery to tissue is severely compromised. Furthermore, hemorrhagic shock may be compounded by specific hemostatic disorders induced by trauma and several
extreme homeostatic imbalances that often appear during resuscitation. We review salient clinical features of these hemorrhage-induced processes and describe recent advances in damage control resuscitation for management of them.