

TRANSITIONS IN CARE— PERIPROCEDURAL BRIDGING AND TRANSITIONS BETWEEN AGENTS

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INTRODUCTION

Patients receiving long-term antiplatelet (AP) therapy or oral anticoagulation (OAC) with vitamin K antagonists (VKA) or a direct-acting oral anticoagulant (DOAC) commonly transition from the ambulatory setting to the hospital and back again. This clinical scenario often requires antithrombotic therapy changes. Each transition point (hospital admission, procedure, unit transfer, discharge to home, or long-term care) represents an opportunity to assess medication regimens for errors, omissions, and treatment adjustments. Emphasis on abbreviating hospital stay and reducing costs further magnifies the need for seamless conversion between oral and parenteral antithrombotic therapies. As these patients transition, either electively or urgently, the diagnosis and indications for anticoagulant therapy should be evaluated. Surgical and invasive procedures add additional levels of complexity where OAC and AP therapy may be continued, interrupted, or replaced with short-term parenteral or *bridge* therapy. Since there is not a standardized definition of *bridging*, most regimens have been developed from observational and retrospective studies, registry data, and more recently a randomized controlled trial. Physician and patient preference will play a role in determining whether therapy is continued, stopped, or replaced with an alternative agent.

PERIPROCEDURAL BRIDGING PRINCIPLES

- Determine thromboembolism risk with interruption of anticoagulant (AC) and/or AP therapy.
- Assess bleeding risk associated with:
 - Parenteral AC/AP therapy
 - Surgical or invasive procedure
 - Continuation of AC/AP therapy
- Weigh risk versus benefits of bridging
- Consider patient and physician's goals and preferences

PERIPROCEDURAL THROMBOEMBOLIC RISK ASSESSMENT

- Patients should undergo a thorough assessment for thromboembolism using a standardized risk stratification evaluation.¹
- Identify level of thromboembolism risk based on underlying disease and comorbidities.
- Previous literature and current guidelines historically risk stratified patients using Cardiac Failure, Hypertension, Age, Diabetes, and Stroke (doubled) (CHADS₂); however, CHA₂DS₂-VASc (vascular disease and sex category) has since been validated and adopted into clinical practice.²⁻⁴

PERIPROCEDURAL BLEEDING RISK ASSESSMENT⁵⁻⁹

- Patients should undergo a thorough assessment for bleeding risk.
- The procedure itself is one of the most important risk factors for bleeding.
- Consider patient risk factors and comorbidities that may impact oral or parenteral anticoagulation and increase procedural and postprocedural bleeding risk.
- Various prognostic and scoring indices for bleeding exist for initiating VKA therapy, in-hospital risk, and postprocedural risk.¹⁰⁻¹³
- Consider using an appropriate bleeding index to identify patient's risk level for bleeding.

DETERMINING PROCEDURAL RISK OF HEMORRHAGE

- Assess the risk of bleeding from the procedure.^{5,6}
- Incidence of hemorrhage will depend on the procedure and occurs in as many as 11.9% of patients during routine surgery. Published bleeding rates include the following:
 - Thoracic surgery 33.7%
 - Abdominal surgery 11.4%
 - Other major surgery 14.3%
- Two thirds of bleeding events will occur within 48 hours after the intervention.
- Procedures in closed areas or cavities carry a high risk for hemorrhagic complications (**Table 10-1**), including:
 - Pericardial region (related to pacemaker/internal cardiac defibrillator [ICD] insertion)
 - Spinal (related to trauma from lumbar puncture or epidural placement)
 - Urologic procedures (involving the retroperitoneum or bladder lumen)
- Assess patient specific risk factors for bleeding (**Table 10-2**).^{4,7}