

Prevention of Venous Thromboembolism After Total Joint Arthroplasty: Aspirin Is Enough for Most Patients

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The orthopedic community continues to be concerned about venous thromboembolism (VTE) after orthopedic procedures. There is currently no consensus on the optimal strategy for prevention of VTE after knee and hip arthroplasty. In North America, the American Association of Orthopaedic Surgeons (AAOS) and the American College of Chest Physicians (ACCP) have both been involved in putting forth guidelines that are intended to minimize this complication after orthopedic procedures.¹⁻²

Both of these guidelines have evaluated the available literature, whenever present, to reach their recommendations. Although the AAOS guidelines do not mention aspirin specifically, they do endorse any form of anticoagulation as acceptable after total hip and knee arthroplasty. The ACCP, on the other hand, gives their highest endorsement (1B) to aspirin as an effective prophylactic agent for prevention of VTE after total joint arthroplasty (TJA).¹ In the analysis, surgeon choice of VTE prophylaxis should be based on a balance between safety and efficacy of a particular anticoagulant, with risk stratification used to identify patients at standard risk (the vast majority) or high risk of VTE or bleeding.

Recent studies have helped to dispel the age-old misconception that aspirin is an effective modality for prevention of clots in the high-pressure (arterial) system but not in the low-pressure (venous) system. The ASPIRE study evaluated 822 patients and detected that the incidence of VTE was 4.8% in patients who received aspirin versus 6.5% in patients who did not receive aspirin.³ Although the difference in the incidence of VTE in the given sample size did not reach statistical

significance, the difference did reach statistical significance when other major vascular issues were taken into account.³ Another study (WARFASA), evaluating 402 patients with prior VTE, detected 42% reduction in the incidence of recurrent VTE in patients that received aspirin, confirming the fact that aspirin does indeed act on the venous low-pressure system.⁴

The prevailing evidence over the last decade supports the notion that aspirin is an effective agent for prevention

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of VTE with a lower risk of imparting many of the harms that other aggressive anticoagulant agents are likely to cause, such as wound drainage, bleeding, increased incidence of readmission, reoperation, periprosthetic infection, and even mortality.⁵⁻⁷

With the increasing scrutiny and penalties imposed on surgeons and health care systems by the regulatory bodies in the United States for a variety of “quality metric” considerations related to readmission and reoperation, including VTE prevention and its complications, the notion of using anticoagulant agents that are not only effective but also less harmful is gaining momentum and greater endorsement. Visiting the US Food and Drug Administration website reveals that among all drugs in the medical community, aggressive anticoagulants are associated with the highest number of adverse effects, including mortality.⁸

The medical community also needs to recognize that there have been immense changes in the practice of orthopedics, particularly in the realm of knee and hip arthroplasty. The majority of patients undergoing TJA receive regional anesthesia, using expeditious surgical techniques, and are mobilized immediately in the postoperative period—all of these

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elements have contributed to a declining incidence of VTE after TJA. Furthermore, patients are often discharged from the hospital within a day or two, making compliance with outpatient anticoagulant therapy more of a challenge. Thus, the historical protocols related to TJA—when patients stayed in bed for days before beginning a delayed and limited physical therapy program and a lengthy hospital stay—are behind us. These major changes in surgical and anesthesia techniques as well as accelerated postoperative protocols highlight the fact that any literature from the far past needs to be examined with caution as it may not be applicable to modern-day surgical patients.

Moving forward, while we strongly endorse risk stratification for VTE prophylaxis, in our opinion aspirin will become the mainstay of prevention of VTE for the majority of patients after TJA. The challenge that lies ahead is to determine which patients are at increased risk of VTE and in need of more aggressive anticoagulants. There has been a recent development on this front that aims to provide some guidance for selection of high-risk patients.⁹ It appears that over 90% of patients undergoing TJA can safely receive aspirin as an anticoagulation prophylaxis, while a validated risk profile can be used to detect those at higher risk for VTE and in need of more aggressive agents.⁹

Thanks to the diligent work of the ACCP and AAOS workgroups and many other scholars in the field, the science of VTE prophylaxis after TJA has truly evolved. The adaptation of the recent ACCP guidelines by the Surgical Care Improvement Project (SCIP), which accepts aspirin as an effective anticoagulation modality, is yet another step in the direction of op-

timizing outcomes for our patients, by preventing the feared VTE while also limiting untoward bleeding complications that can occur with administration of aggressive anticoagulants.¹⁰

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