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Oral Anticouagulants in Hip Fracture. Is it Actually Worth the Wait?

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Abstract

Hip fractures in the elderly are an orthopaedic emergency. Timely surgical intervention—ideally within 24 to 48 hours—has been strongly associated with reduced morbidity, mortality, and length of hospital stay. However, with the increasing prevalence of cardiovascular and cerebrovascular comorbidities, many of these patients present on oral antiplatelet agents or anticoagulants such as clopidogrel, aspirin, warfarin, or newer direct oral anticoagulants (DOACs). The critical question facing orthopaedic teams worldwide is whether surgery should be delayed to mitigate bleeding risks or whether early surgery should proceed despite pharmacologic anticoagulation. This article aims to explore the evidence and practical considerations surrounding this dilemma.

Keywords: Hip Fracture, Antiplatelet Therapy, Clopidogrel, Surgical Timing, Perioperative Bleeding

Introduction

Hip fractures are among the most common and devastating injuries in the elderly, associated with significant morbidity, mortality, and healthcare costs. Globally, it is estimated that over 1.6 million hip fractures occur annually, a figure projected to rise to 6.3 million by 2050 due to increasing life expectancy and osteoporosis prevalence [1]. Timely surgical intervention—ideally within 24 to 48 hours—is widely regarded as the gold standard in the management of these fractures. Multiple studies and international guidelines, including those from the National Institute for Health and Care Excellence (NICE) and the American Academy of Orthopaedic Surgeons (AAOS), advocate for early operative fixation to reduce complications and improve outcomes [2, 3].

Early surgery has been associated with lower 30-day mortality, reduced risk of delirium, pneumonia, thromboembolic events, and pressure ulcers, and better long-term functional outcomes [4, 5]. However, an increasing number of these patients present on long-term antithrombotic therapy—particularly clopidogrel, prescribed for secondary prevention in ischemic heart disease, cerebrovascular disease, and after percutaneous coronary interventions. Clopidogrel's irreversible inhibition of platelet aggregation poses a theoretical risk of perioperative bleeding, which historically led to a recommendation for delaying elective surgery by 5–7 days after discontinuation.

In emergency orthopaedic trauma, however, this delay can come at a significant cost. Prolonged immobilization, increased hospital stay, higher risk of medical complications, and psychological distress—all negatively impact recovery. Yet, the fear of bleeding complications and the challenge of anaesthesia planning in patients on antiplatelet therapy create a dilemma for orthopaedic surgeons, and anaesthesiologists, alike.

This article, by examining the current literature, perioperative considerations, and practical decision-making frameworks seeks to answer a critical question faced daily in orthopaedic trauma units: Is it actually worth the wait ?

The Case for Early Surgery: A Compelling Argument

Hip fractures are time-sensitive injuries, particularly in the elderly population, where delayed surgical fixation can be detrimental. Several landmark studies have established that surgical fixation within 24 to 48 hours significantly reduces in-hospital mortality, postoperative complications, and length of stay [1, 2]. The rationale is straightforward: early fixation allows pain control, early mobilization, and prevention of complications related to prolonged immobility, such as pneumonia, deep vein thrombosis, pressure ulcers, and delirium.

Patients on clopidogrel or similar antiplatelet agents, however, introduce a clinical conundrum. Clopidogrel, a thienopyridine derivative, irreversibly inhibits the P2Y12 component of ADP receptors on platelet surfaces, effectively impairing platelet aggregation for the life span of the platelet—typically 7 to 10 days. Traditional perioperative guidelines have therefore advocated withholding clopidogrel for 5 to 7 days prior to any major surgery, especially when neuraxial anesthesia is planned, to minimize bleeding risk.

Yet, emerging evidence calls this cautious approach into question—particularly for hip fracture patients, where time is of the essence. Several retrospective and prospective cohort studies have evaluated the outcomes of patients on clopidogrel who underwent early surgery. A systematic review by Tran et al. found no significant

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difference in intraoperative bleeding, transfusion requirements, or postoperative complications between patients on clopidogrel and controls when surgery was performed within 72 hours [3]. Similarly, Lee et al. demonstrated that performing hip surgery within 24 to 48 hours of the last clopidogrel dose did not significantly increase adverse outcomes, particularly when general anaesthesia was used [4].

These findings are not surprising when contextualized. First, many elderly patients are already functionally platelet-deficient due to age-related platelet dysfunction, renal insufficiency, or chronic illnesses. Second, the absolute increase in bleeding risk due to clopidogrel, while statistically present, may not always be clinically significant when weighed against the risks of delaying surgery.

Indeed, the cost of delay is high. Prolonged immobilization—even for a few days—can lead to rapid sarcopenia, exacerbation of comorbid conditions, psychological distress, and a higher likelihood of institutionalization. Every hour of delay in surgery increases the odds of postoperative complications and mortality. A meta-analysis of 291,000 patients revealed that a surgical delay beyond 48 hours resulted in a 41% increase in 30-day mortality [2].

Thus, for many patients on clopidogrel, especially those in stable cardiovascular condition with no recent coronary stenting, early surgery within 48–72 hours may be both feasible and safe.

The Case for Caution: Bleeding, Hematoma, and Anaesthetic Risks

Despite the growing support for early intervention, caution must be exercised. Clopidogrel-induced platelet dysfunction can elevate the risk of significant intraoperative bleeding, necessitating blood transfusion or reoperation for hematoma evacuation. While some studies suggest minimal increases in transfusion rates, others have reported up to a 20–30% rise in intraoperative bleeding volumes in clopidogrel users undergoing hip fracture surgery [5].

The anaesthetic implications are even more critical. Neuraxial anaesthesia, favored for its hemodynamic stability and superior postoperative analgesia, is associated with a rare but devastating risk of spinal or epidural hematoma in anticoagulated patients. The American Society of Regional Anaesthesia and Pain Medicine (ASRA) guidelines strictly recommend a 5 to 7-day discontinuation window for clopidogrel before performing spinal or epidural blocks [7].

This severely limits anaesthetic options for early surgery. General anaesthesia becomes the fallback, but it is not without drawbacks. Elderly patients with limited cardiopulmonary reserve, cognitive impairment, or poorly controlled comorbidities may face higher risks under general anaesthesia. Moreover, general anaesthesia is often associated with increased rates of postoperative delirium, longer recovery time, and higher pulmonary complication rates, particularly in frail patients.

Another point of concern is the heterogeneity in clopidogrel metabolism due to genetic polymorphisms. Some patients, especially poor metabolizers of the CYP2C19 enzyme, may exhibit prolonged platelet inhibition even beyond the expected 5–7 days. Unfortunately, routine testing for platelet function or clopidogrel metabolism is not widely available or practical in emergency orthopaedic settings. This pharmacodynamic variability further complicates the risk stratification process.

Additionally, in patients with a history of recent percutaneous coronary intervention (PCI) or cerebrovascular events, early discontinuation of clopidogrel—even for surgery—can result in catastrophic thrombotic events such as stent thrombosis or ischemic stroke. A thorough interdisciplinary review with cardiology and neurology is thus essential in these cases, as early surgery may not be a viable option.

Balancing Risks with Realities: Toward a Practical Algorithm

What, then, is the pragmatic way forward? A risk-benefit model customized to the individual patient is key.

Low thrombotic risk, low anaesthetic risk: Proceed with surgery within 48–72 hours using general anaesthesia, ensuring adequate blood availability intraoperatively.

High thrombotic risk (e.g., recent drug-eluting stent, stroke within 3 months): Delay surgery if feasible or consider platelet transfusion in consultation with cardiology.

Neuraxial anaesthesia preferred (due to comorbidities): Wait full 5–7 days after last clopidogrel dose or explore regional anaesthesia with ultrasound guidance under close hematology input.

Ultimately, shared decision-making—bringing together the orthopaedic surgeon, anesthesiologist, geriatrician, and patient's family—forms the cornerstone of safe and timely care. The decision to wait or operate must be guided by both clinical evidence and the realities of the individual patient's physiological reserve, bleeding risk, anaesthetic options, and social circumstances.

Conclusion

The dogma of a fixed 5–7 day wait after stopping clopidogrel before hip fracture surgery is increasingly being challenged. While bleeding and anaesthetic risks are real, the mounting evidence supports early surgery—ideally within 48–72 hours—in selected patients on clopidogrel, particularly if general anaesthesia is safely feasible. A case-by-case evaluation, involving orthopaedic surgeons, anesthesiologists, and geriatricians, is vital to individualize care. Waiting may be appropriate in some, but for many, it may not be worth the wait.

Declaration of patient consent : The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given his/her consent for his/her images and other clinical information to be reported in the Journal. The patient understands that his/her name and initials will not be published, and due efforts will be made to conceal his/her identity, but anonymity cannot be guaranteed.

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