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CORR Insights®: Do Patients Taking Warfarin Experience Delays to Theatre, Longer Hospital Stay, and Poorer Survival After Hip Fracture?

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Where Are We Now?

Lawrence and colleagues investigated the association between warfarin treatment and time-to-surgery, length of hospital stay, and survival rate in patients undergoing surgical treatment of their femoral neck fractures.

Delayed surgical treatment of patients with hip fractures may result

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in longer hospital stays, more in-hospital complications, decreased functional recovery, and a greater likelihood of mortality. The current study convincingly demonstrates that warfarin treatment is associated with delayed surgical treatment, prolonged hospitalization, and death within 1 year of surgery. Therefore, one might reasonably conclude that early reversal of warfarin should be performed in these patients.

However, we must also be careful with the interpretation of these data. As the authors specifically point out, their study data did not investigate the actual cause for the delay of surgery. The most-common indications for warfarin treatment in this group included atrial fibrillation, thromboembolic disease, mechanical heart

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valve, and combinations thereof. It is possible that in many patients, these underlying medical problems contributed to the delayed surgery by requiring additional medical workup and management.

Despite this uncertainty, early reversal of warfarin seems to be crucial in these patients given the well-known morbidity associated with delayed surgical treatment. Different approaches for warfarin reversal in patients with hip fracture have been suggested [1, 2, 5–8, 10]. Available options include prothrombin complex concentrate (PCC), fresh frozen plasma (FFP), and vitamin K [7]. As of today, there are no widely accepted guidelines for pharmacologic reversal of warfarin in patients requiring hip fracture surgery. Some authors suggested administration of vitamin K as a safe, effective, and cost-efficient method of reversing warfarin in patients undergoing hip fracture surgery [1, 5–8]. However, the ideal dosage, dosing schedule, and route of administration (oral versus subcutaneous or intravenous) remain unknown.

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Where Do We Need To Go?

The current study emphasizes that there remains considerable room for improvement regarding the care of hip fracture patients who are on warfarin. Avoiding delays of surgery and early reversal of warfarin will continue to be the focus of future investigations. Warfarin reversal may help decrease time to surgery in hip fracture patients. However, the possible influence of other factors, such as the need for prolonged medical clearance and medical management prior to surgery, also requires further investigation. Therefore, it will be important in future investigations to identify the specific factors that contribute to delays of surgery in this patient population. Identification of these factors may provide useful information on how to minimize the time to surgery.

Establishing widely-accepted pharmacologic warfarin reversal protocols for patients with hip fractures remains challenging. The appropriate type of medication (vitamin K versus FFP or PCC), dosing schedules, and route of administration (oral vitamin K versus subcutaneous or intravenous) must be identified. Moreover, the risk profile of pharmacologic warfarin reversal protocols needs to be further investigated in particular with regards to the risk of thromboembolic events. Similarly, the role of bridging therapy with heparin

or low molecular weight heparins needs to be defined in future studies. Finally, any warfarin reversal protocol must be evaluated for its cost-efficiency [7].

Besides warfarin as a well-established treatment method for long-term anticoagulation, direct oral anticoagulants, such as dabigatran, rivaroxaban, apixaban, and edoxaban, have recently become more popular [9]. Long-term treatment with these medications will provide similar challenges to the medical community. In particular, there are limited pharmacologic options for reversal of most of these novel agents. We need clinical protocols to guide the timely treatment of hip fracture patients who take these new anticoagulants.

How Do We Get There?

Much of the information about the timing of geriatric hip fracture surgery comes from analyses of larger databases, but database analyses provide only limited patient-level information. Future prospective studies should record for each individual patient the specific system-related and medically-related reasons causing delayed surgical treatment.

Our practice guidelines pertaining to warfarin management derive from non-orthopaedic sources [3]. Orthopaedic-

specific guidelines would help address the needs of this large and important patient population, though guideline creation certainly remains an interdisciplinary effort. Similarly, the process of implementing warfarin reversal guidelines within hospital systems requires interdisciplinary collaboration between emergency room doctors, surgeons, medicine doctors, anesthesiologists, and nursing staff. In this context, the implementation of geriatric trauma centers seems to be a promising concept that may facilitate process improvements within this specific patient population [2, 4].

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