Pursuit of the Optimal Antithrombotic Regimen for Patients With Non−ST-Segment Elevation Acute Coronary Syndrome Who Undergo Subsequent Percutaneous Coronary Intervention

We are intrigued by the recent Chen, et al., research publication, "Association of Parenteral Anticoagulation Therapy with Outcomes in Chinese Patients Who Underwent Percutaneous Coronary Intervention (PCI) for Non−ST-Segment Elevation Acute Coronary Syndrome (NSTE-ACS).[1]" That research challenges current guidelines[2] for the management of patients presenting with NSTE-ACS (in particular, anticoagulation therapy in the setting of concurrent dual oral antiplatelet therapy). We have complementary information published in this journal some time ago[3,4] that may prove useful for the design of further investigations into optimization of antithrombotic regimens in the medical management of patients with NSTE-ACS who undergo subsequent PCI.

Thrombosis occurs through 2 interrelated mechanisms[5]: first, the adhesion, activation, secretion, and aggregation of platelets; and second, amplification of the coagulation cascade - which requires an activated platelet surface for the development of thrombin. If adequate antiplatelet therapy is provided, then thrombosis does not occur, even in the absence of specific antithrombin therapy directed toward the coagulation cascade. This has been observed both in vitro[6] and in vivo.[7]

However, the presence of thrombus before initiation of antiplatelet therapy, for example at the site of plaque rupture in patients admitted with biomarker-positive NSTE-ACS, appears to require the addition of antithrombin therapy for successful clinical stabilization.[8] Antithrombin therapy is, to date, a Guideline Class I recommended treatment for patients admitted with NSTE-ACS (as well as for subsequent PCI).[2] An effective drug in this context is enoxaparin (Level of Evidence, A), which a majority of the anticoagulated Chen, et al., patients received.[1]

When confronted with the challenge of minimizing further ischemia against bleeding risk in this same patient population some 20 years ago, we noted that the then contemporary Dose-Ranging Trial of Enoxaparin for Unstable Angina (TIMI 11A)[9] showed 1.0 mg/kg subcutaneously every 12 hours to be similarly efficacious but with less major hemorrhage compared with 1.25 mg/kg subcutaneously every 12 hours. However, no other dose-ranging studies were available. Our approach, as published in this journal,[3] therefore involved using a reduced dose of enoxaparin (0.5 mg/kg) with dual oral antiplatelet therapy (aspirin + clopidogrel) for medical stabilization followed by triple antiplatelet therapy alone (adding intravenous eptifibatide) without anticoagulation for PCI. Our observational results were salutary, including a major bleeding complication rate of 0.1%, at a trade-off of 0.6% "failed" medical management mandating emergency PCI, and 0.1% peri-PCI major ischemic complication. This remains the default approach for one author (SJD), without a detectable change in outcomes.

Because the optimal antithrombotic regimen for the medical management of patients with NSTE-ACS who undergo subsequent PCI has not been determined, we would suggest further incremental investigations, starting with a randomized trial comparing our approach − without additional enoxaparin or unfractionated heparin at the time of PCI[3,4] − with more conventional dosing of enoxaparin pre- and peri-PCI. If positive, then further work would follow to address the foundational question of Chen, et al., "Is parenteral anticoagulation therapy actually beneficial for patients with NSTE-ACS who undergo subsequent PCI?"

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Prolonged Benefit of Radial Access Beyond 30 Days: Fact or Fiction?

We read with great interest the study by Kim et al[1] recently published in the Journal. The authors have compared the outcomes of patients with acute myocardial infarction receiving transradial intervention (TRI) or transfemoral intervention (TFI) with or without the use of vascular closure device (VCD)