Triple Therapy for Acute Coronary Syndrome with Coronary Artery Aneurysm/Ectasia

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Background

- **Coronary artery aneurysm/ectasia (CAA/CAE)** refers to focal or diffuse dilations of artery segments at least 1.5 times adjacent normal segments.
- CAA/CAE in the setting of **acute coronary syndrome (ACS)** is a rare but significant finding during percutaneous coronary intervention (PCI), with increased risk of recurrent thrombotic events and procedural complications.
- We lack large-scale randomized controlled trials on optimal treatment strategies for this subset of patients, but the use of **triple therapy** – consisting of dual antiplatelet therapy (DAPT) plus warfarin – has been reported in ACS patients with other indications for chronic anticoagulation.
- Our purpose was to describe the **safety of prolonged triple therapy with a direct oral anticoagulant (DOAC)** for secondary prevention of ACS in four patients with CAA/CAE in order to provide insight on **potential future treatment regimens** for this patient population.

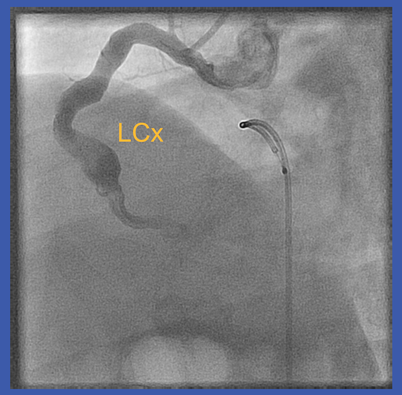

Fig 1. Patient 1 coronary angiography

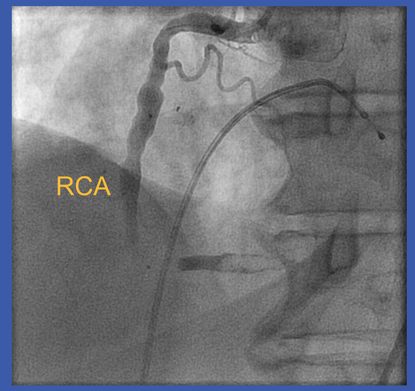

Fig 2. Patient 2 coronary angiography

Cases

- **Patient 1** was a 47-year-old man who presented with inferolateral STEMI complicated by ventricular fibrillation and cardiac arrest.
  - **Angiographic findings**: CAA of L circumflex (Cx) artery (Fig 1)
  - **Triple therapy duration**: 38 months
  - **Bleeding complications at 12 months**: none
  - **Recurrence of thrombotic events at 12 months**: none

- **Patient 2** was a 67-year-old man who presented with right coronary artery (RCA) STEMI complicated by high thrombotic burden.
  - **Angiographic findings**: CAE of RCA with 100% occlusion (Fig 2)
  - **Triple therapy duration**: 12 months
  - **Bleeding complications at 12 months**: none
  - **Recurrence of thrombotic events at 12 months**: none

- **Patient 3** was a 58-year-old man who presented with anterolateral STEMI with high thrombus burden in the LAD.
  - **Angiographic findings**: CAE of multiple vessels, including LAD + RCA
  - **Triple therapy duration**: 6 months
  - **Bleeding complications at 12 months**: none
  - **Recurrence of thrombotic events at 12 months**: none

- **Patient 4** was a 28-year-old man who presented with anterior STEMI and multiple episodes of ventricular tachycardia.
  - **Angiographic findings**: CAA of LAD
  - **Triple therapy duration**: 1 month
  - **Bleeding complications at 12 months**: none
  - **Recurrence of thrombotic events at 12 months**: none

Discussion

Recommendations on Triple Therapy

- 4 patients here were treated with aspirin 81 mg qday, clopidogrel 75 mg qday, and apixaban 5 mg BID
- Duration of triple therapy varied between 1-38 mos between the 4 patients, with no differences in bleeding complications or recurrence of thrombotic events observed

Alternative Therapies

- Low procedural success rate for PCI or surgery in this population due to challenging anatomy of culprit vessels
- Complications include:
  - Stent thrombosis
  - Poor bypass graft patency
  - Target lesion revascularization
  - Recurrent myocardial infarction/ischemia

Existing Support for Triple Therapy

- European Society of Cardiology guidelines: 4 weeks of triple therapy before transitioning to dual therapy (DOAC plus aspirin or clopidogrel) in ACS patients with indication for chronic anticoagulation (i.e., atrial fibrillation)
- Small trials in the US (WOEST, ISAR-TRIPLE) on optimal triple therapy favor a short duration (6 weeks), but have used warfarin
  - Lack of data regarding the use of DOACs in triple therapy

Topics for Future Research

- Optimal duration of triple therapy using DOACs + DAPT
- Use of other popular DOACs (rivaroxaban, dabigatran)