

### 118 | Sensitivity of Three Distinct Imaging Findings for Type A Aortic Dissection

Neha Ray, Courtney Owens, John R. Frederick, John Childress, Michael A. Gibbs, Margaret R. Lewis  
*Carolinas Medical Center*

**Background and Objectives:** Stanford Type A aortic dissections are rare but life-threatening emergencies. They are commonly misdiagnosed and have a high in-hospital mortality. CT angiography has high sensitivity for detection of type A aortic dissections but requires transport out of the resuscitation bay and can delay intervention. We sought to identify the sensitivity of three distinct CT imaging findings that could potentially be identified with point-of-care ultrasound using patients with known Type A aortic dissections: (1) dilated ascending aorta, (2) presence of pericardial effusion, and (3) dissection flap extending to the level of the celiac artery takeoff.

**Methods:** A retrospective chart review was performed to identify Type A aortic dissections using a surgical database of Type A aortic dissection patients (total 240). Each patient's CT chest angiography was then independently reviewed by 2 emergency medicine physicians to evaluate for the presence of the above imaging findings. Sensitivity of these imaging findings was calculated. Inter-reviewer reliability was assessed between the two reviewers as well as with radiology documentation, when available.

**Results:** 240 charts were reviewed, and 166 patients were identified to meet inclusion criteria. Patients were excluded for traumatic dissections, Type B dissections, and lack of available imaging. Presence of a dilated ascending aorta (dilated proximal and/or mid-ascending aorta) was 0.85 (CI 0.79–0.90). The sensitivity of a pericardial effusion was 0.20 (CI 0.14–0.27) and for a dissection flap extending to the level of the celiac artery takeoff was 0.58 (CI 0.51–0.66). The overall sensitivity of one or more of these findings was 0.94 (CI 0.90–0.98). The correlation coefficient between the first and second reviewer was 0.71 for proximal ascending aorta measurement and 0.65 for mid-ascending aorta measurement. The kappa value between the first and second reviewer was 0.50 for presence a pericardial effusion and 0.65 for extension of dissection flap to the level of the celiac artery takeoff.

**Conclusion:** The above study demonstrates high sensitivity for detection of a Type A aortic dissection using 3 distinct imaging findings on CT images. Further studies are needed to examine methods to improve inter-reviewer reliability and to examine if these imaging findings can be accurately identified by emergency medicine physicians with the use of point-of-care ultrasound.

### 119 | Coadministering Long-Acting Oral With Intravenous Bolus Rate Reducers in Treating Rapid Atrial Fibrillation

David R. Vinson<sup>1</sup>, Margaret Warton<sup>2</sup>, Erik R. Hofmann<sup>1</sup>, Edward J. Durant<sup>1</sup>, Adina S. Rauchwerger<sup>2</sup>, Jennifer Y. Zhang<sup>2</sup>, Mary E. Reed<sup>2</sup>, Dustin G. Mark<sup>1</sup>

<sup>1</sup>The Permanente Medical Group, <sup>2</sup>Kaiser Permanente Northern California, Division of Research

**Background and Objectives:** Emergency department (ED) patients with atrial fibrillation (AF) and rapid ventricular response (RVR) often receive an intravenous (IV) atrioventricular nodal blocker (AVNB) (diltiazem or metoprolol). Long-acting (LA) oral AVNBs are not uniformly co-administered. We piloted a clinical decision support (CDS) tool recommending AF best-practices, including early use of LA orals: metoprolol, diltiazem XR, or atenolol. We hypothesized that adding an LA oral to IV bolus AVNBs would reduce the need for continuous AVNB infusions.

**Methods:** We undertook a retrospective cohort study in 3 large community EDs in Kaiser Permanente Northern California from the CDS pilot launch in 02/2021 through 10/2022. We included adults with AF and RVR (heart rate  $\geq 110$  bpm  $< 2$  h of arrival) without more serious precipitants (e.g., ST-elevation myocardial infarction, thyroid storm, decompensated heart failure [HF]) who received IV diltiazem or metoprolol. Concurrent LA orals were given 1 h prior to or 1 h after initial IV bolus. Our outcome was continuous diltiazem or esmolol infusion. We report relative risks (RRs) with 95% confidence intervals (CIs), adjusting for CHA<sub>2</sub>DS<sub>2</sub>-VASc score (includes age, sex, and cardiovascular comorbidities), maximum heart rate (HR) within 2 h of arrival, concurrent IV MgSO<sub>4</sub> ( $\geq 2$  g), and attempted cardioversion.

**Results:** In 1524 encounters among 1305 patients receiving IV AVNBs, 54% were female, with median age 71 year (interquartile range 61–78 years); 21.2% had HF. IV bolus AVNBs included diltiazem (58.9%), metoprolol (30.2%), or both (10.9%). Overall, 691 (45.3%) received an LA oral AVNB (beta-blockers preferred 4:1 over calcium-channel blockers). LA oral recipients were similar in demographics and comorbidities to non-recipients but underwent fewer cardioversion attempts (9.8% vs. 21.1%) and received more concurrent IV MgSO<sub>4</sub> (24.2% vs. 13.8%). Continuous infusions of AVNBs were needed in 11.8% and 21.1% of those with and without LA orals, respectively (difference 9.3%, 95% CI 4.7–13.4;  $p < 0.001$ ). Variables independently associated with infusion included early HR  $\geq 140$  bpm (RR 2.2 [95% CI, 1.7 to 2.8]), an LA oral (RR 0.53 [95% CI, 0.39 to 0.73]), and attempted cardioversion (RR 0.49 [95% CI, 0.35 to 0.70]).

**Conclusion:** Co-administering an LA oral AVNB with IV diltiazem or IV metoprolol to ED patients with AF and RVR was associated with a reduced need for continuous diltiazem or esmolol infusion.