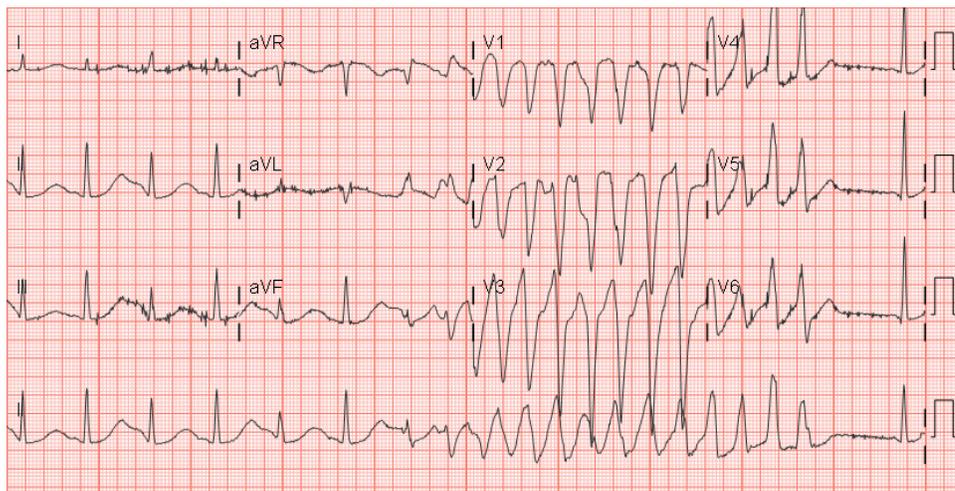


## Diagnostic Dilemma!

ECG:



Electrocardiogram (ECG) of a 43 year old woman with chronic kidney disease (CKD). What abnormalities are suggested by this ECG?

(Answer: See Page 7)

### Cardiology Quiz for hospitalist's practice: (Answers: See page 7)

1. 66 year old female patient is admitted for atrial fibrillation with rapid ventricular response. It is her second admission in the past year for atrial fibrillation. She spontaneously converted to sinus rhythm in 4 hours. Her other medical comorbidities include history of myocardial infarction 2 years ago and rheumatoid arthritis. Which of the following is the most appropriate medication to prevent stroke in this patient?

- A. Aspirin
- B. Clopidogrel
- C. Coumadin
- D. No medication needed

2. 76 year old male with history of atrial fibrillation, hypertension and congestive heart failure is on dabigatran. Patient presents with sudden onset of altered mental status after a fall. CT scan done in the ER reveals subdural hematoma with mid line shift. His creatinine at baseline was 0.86 mg/dl. Creatinine this admission is 2.8 mg/dl. You decide to reverse anticoagulation in view of subdural hematoma. Which of the following are agents to use to reverse anticoagulation with dabigatran?

- A. Prothrombin complex concentrate (PCC)
- B. Recombinant factor VII
- C. Dialysis
- D. All of the above

3. Which of the following strategies is associated with improved outcomes in patients with atrial fibrillation?

- A. Maintaining sinus rhythm
- B. Strict rate control resting HR <80 bpm and <110 bpm with moderate exercise
- C. Lenient rate control resting HR <110 bpm
- D. None of the above

4. All of the following agents are recommended for stroke prevention in atrial fibrillation except

- A. Rivaroxaban
- B. Apixaban
- C. Dabigatran
- D. Ticagrelor

## Diagnostic Dilemma!

### Discussion of ECG:

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Marked prolongation of the QT interval in this patient with CKD should suggest critical hypocalcemia or other electrolyte abnormality such as hypomagnesemia. The QT interval is more than half the RR interval and measures 0.54 sec (0.64 sec corrected for rate). Other findings include polymorphic ventricular tachycardia (torsades de pointes), a consequence of QT prolongation. Other causes for QT prolongation should be considered, including congenital prolonged QT and drug effects. An excellent website for checking drugs that prolong QT is <http://qtdrugs.org>. Treatment in this patient, whose ionized serum calcium was 0.92 mmol/L and ionized serum magnesium was 0.26 mmol/L, included electrolyte replacement.

### Answers to Quiz:

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#### 1. Answer: C

Patient is a candidate for coumadin in view of her CHA<sub>2</sub>DS<sub>2</sub>-VASc score. CHA<sub>2</sub>DS<sub>2</sub>-VASc scoring is as follows – Congestive heart failure -1, hypertension-1, age 65 to 75 yrs -1 and >75 yrs – 2, diabetes mellitus – 1, h/o stroke – 2, vascular disease -1 and female sex- 1. Patients with CHA<sub>2</sub>DS<sub>2</sub>-VASc score ≥ 2 should be considered for oral anticoagulation. Patients with CHA<sub>2</sub>DS<sub>2</sub>-VASc 1 are candidates for either oral anticoagulation (eg, vitamin K antagonist, for a target INR of 2-3) or aspirin 75 to 325 mg daily, but preferably an anticoagulant. In patients without risk factors (CHA<sub>2</sub>DS<sub>2</sub>-VASc score = 0) even antithrombotic therapy with aspirin is not indicated unless needed for other indications.

#### 2. Answer: C

Dabigatran is cleared by dialysis and can be used in this situation to reverse anticoagulation. There is some experimental evidence to support the use of four factor PCCs (II, VII, IX and X), activated PCCs (aPCCs), and recombinant factor VIIa (rFVIIa).

#### 3. Answer: D

AFFIRM trial showed no superiority of rhythm control compared to rate control. RACE II trial evaluated the lenient and strict rate control strategy and there was no difference in outcomes with respect to cardiovascular morbidity and mortality.

These rate control strategies are less relevant in highly symptomatic patients in whom rhythm control is the preferred strategy.

#### 4. Answer: D

Rivaroxaban (ROCKET AF trial), Apixaban (ARISTOTLE trial) and dabigatran (RELY trial) have been shown to be useful in stroke prevention in non valvular atrial fibrillation. Ticagrelor is a newer antiplatelet agent and has not been studied in atrial fibrillation patients.