



# Successful use of apixaban following rivaroxaban induced hepatotoxicity

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## Objective

To describe a case of hepatotoxicity related to rivaroxaban and successful substitution with apixaban.

## Clinical Features

Hepatotoxicity in a 77-year-old male, admitted to an older adult mental health ward, with a major depressive episode on the background of dementia.

### Past medical history

- Depression
- Type 2 diabetes mellitus
- Hypercholesterolaemia
- Hypertension
- Atrial fibrillation
- Prostatomegaly
- Dementia
- Hypothyroidism

### Medications on admission

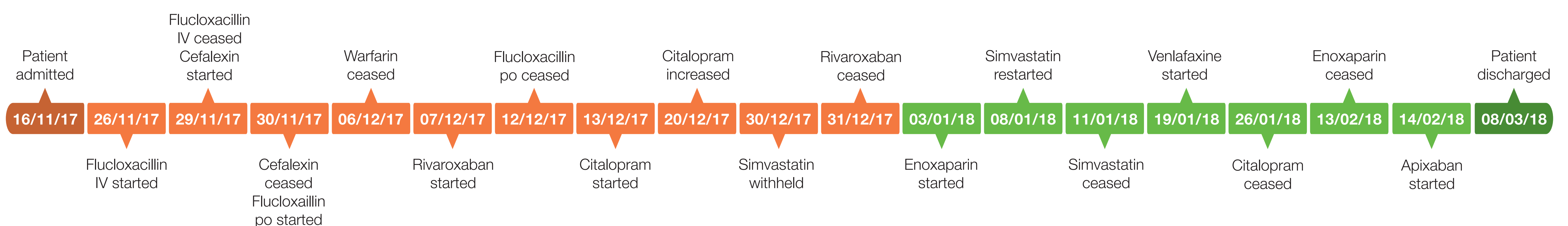
- Digoxin 250microg mane
- Metformin 500mg mane
- Levothyroxine 100microg mane
- Irbesartan 150mg mane
- Simvastatin 20mg nocte
- Warfarin 5mg nocte
- Risperidone 1mg nocte

### Case Progress

- Patient was taking warfarin for atrial fibrillation on admission.
- Warfarin was ceased not long after admission due to labile INR results.
- Rivaroxaban was the chosen alternative due to its simple dosing regimen.
- During the admission, the patient was treated for staphylococcus aureus bacteraemia with antimicrobials.
- The patient was trialled on citalopram with risperidone and then venlafaxine with risperidone for their depression.
- Within 4 weeks of commencing rivaroxaban, the patient's liver function tests (LFTs) became deranged.

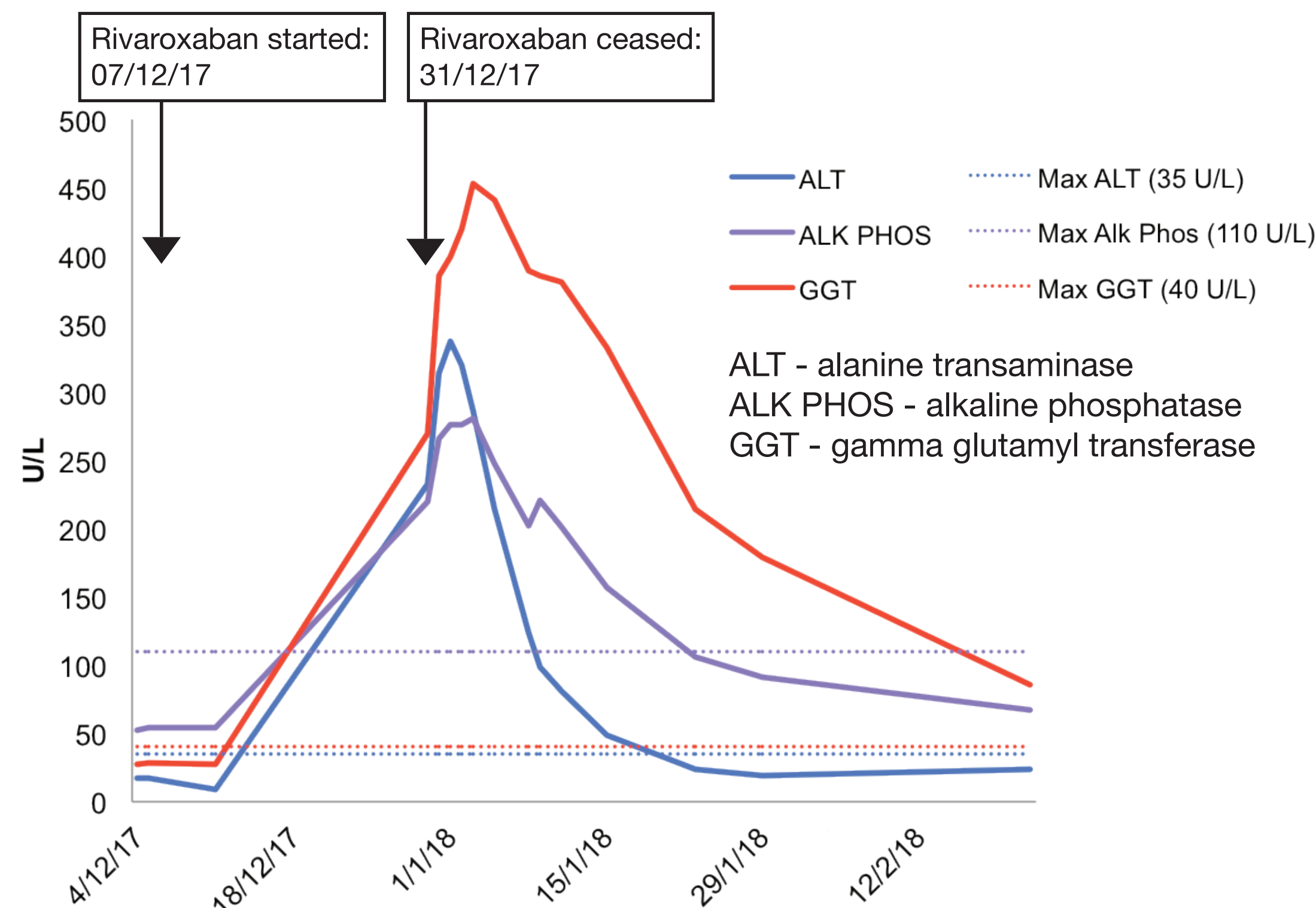
### Nil Known Drug Allergies

### Case Progress Timeline



### Liver Function Tests

- Liver function was tested on 30<sup>th</sup> December 2017 and noted to be deranged.
- There was a hepatocellular pattern to the liver function tests.
- The patient was examined by a doctor and demonstrated no abdominal pain, confusion, jaundice of sclera or asterixis.
- The diagnosis was drug induced liver injury with a differential diagnosis of viral induced liver injury.
- The doctor suggested withholding rivaroxaban and simvastatin.



### Pharmacist Interventions

- Medical team consulted the clinical pharmacist on 2<sup>nd</sup> January 2018 for advice on potential medication causes.
- A literature search identified rivaroxaban as the most likely cause for the deranged liver function.
  - » A published case study described a patient with suspected rivaroxaban associated liver injury, which resolved rapidly after discontinuation.<sup>1</sup> This patient was safely prescribed apixaban as an alternative factor Xa inhibitor.
- Rivaroxaban was ceased.
  - » This was based on the pattern of liver function abnormalities, the temporal relationship and a Naranjo score of probable.
- Clinical pharmacist provided advice on appropriate alternative anticoagulation.
  - » Enoxaparin was used whilst awaiting the LFTs to improve.
  - » Apixaban was commenced once LFTs had improved.
- Simvastatin was restarted on 8<sup>th</sup> January 2018, however the Alk Phos became raised again and so it was ceased on 11<sup>th</sup> January 2018.

## Outcomes

- Once hepatotoxicity resolved, the patient was commenced on apixaban.
- After apixaban was commenced, the patient's liver function remained stable for the three weeks until discharge.
- Lipids performed 1<sup>st</sup> March 2018 were within normal limits, simvastatin was not restarted.
- The patient was discharged on apixaban in March 2018.

## Medications on discharge

- Apixaban 5mg bd
- Coloxyl and Senna<sup>®</sup> 1 tablet nocte
- Magnesium aspartate 500mg bd
- Movicol<sup>®</sup> 1 sachet bd
- Venlafaxine XR 225mg mane
- Digoxin 125microg mane
- Metformin 500mg mane
- Levothyroxine 100microg mane
- Irbesartan 150mg mane
- Risperidone 3mg nocte



## Conclusion

- Hepatic impairment is a rarely reported adverse effect of rivaroxaban.
- For patients who develop liver injury secondary to rivaroxaban, switching to apixaban is a feasible option.

## Reference

1. Licata G, Puccia F, Lombardo V, Serruto A, Minissale MG, Morreale I, et al. Rivaroxaban-induced hepatotoxicity: review of the literature and report of new cases. Eur J Gastroenterol Hepatol. 2018 Feb; 30 (2):226-232.

