A Rare Case of Cefazolin Induced Coagulopathy and INR Derangement
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A 53 y.o. female with a history of duodenal adenocarcinoma status-post Whipple Procedure, bicuspid aortic valve, and heart failure presented for evaluation of chest pain & dyspnea on exertion. Echocardiography revealed severe aortic stenosis and an ejection fraction of 25-30%. She subsequently received mechanical aortic valve replacement (AVR) with no operative complications. She received Cefazolin 2g IV three times daily on the 1st & 2nd day of admission. Cardiology recommended starting the patient on Warfarin, per protocol for mechanical AVR. However, the patient was not eligible for this medication due to an increase in international normalized ratio (INR) of unknown origin. The patient’s baseline INR was 1.0. On the third day of admission INR rose to 3.6, with a repeat INR of 4.7 and 4.9 that day. She had normal liver studies, mixing studies, and no evidence of active bleeding. She had not received any Warfarin or anticoagulation. Suspicion for DIC was low with normal hemoglobin, platelet count, and fibrinogen levels. She was discharged with plan to titrate warfarin outpatient. However, during outpatient testing 14 days post Cefazolin administration, INR rose to 8.4. At this time, she was given 5mg Vitamin K with normalization of INR to 1.0 two days later.

Discussion: Prior case studies have identified similar coagulopathies secondary to Cefazolin use. Recent studies point to inhibition of epoxide reductase and gamma-glutamyl-carboxylase through Cefazolin’s thiol group, causing Vitamin K inhibition. Our patient’s normalization of INR after Vitamin K administration furthers this theory. Additionally, studies show malnourished patients are susceptible to this side effect. Our patient’s BMI was 19 at the time of surgery, in addition to possible malnourishment secondary to Whipple procedure. Due to the popularity of Cefazolin use for surgical infection prophylaxis, more emphasis ought to be placed on monitoring INR in high risk patients.