Unusual Haemorrhagic Complications In A Patient With Multiple Comorbidities On Long Term Anticoagulant Therapy Undergoing Continuous Ambulatory Peritoneal Dialysis

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Abstract: A 61 years old diabetic ESRD male with prosthetic aortic valve on warfarin and previous episode of thalamic bleed on CAPD developed rectus abdominis bleed and hemarthrosis. He had a high INR and was managed conservatively with full recovery.

Key Words: Prosthetic valve, CAPD, hemarthrosis, rectus abdominis hematoma.

Introduction

The indications for starting anticoagulation therapy are numerous and an artificial heart valve, as in this case, is one of them. The appropriate management of warfarin dosage in the general population can be quite a challenge owing to the unique metabolism, the complicated clotting system and the varied interactions(1). These challenges are multiplied among patients with chronic kidney disease (CKD) and ESRD (2). Hence in a setting of a patient with chronic kidney disease undergoing peritoneal dialysis cautious monitoring INR levels and bleeding complications are vital. Here we describe a patient on CAPD and on long term warfarin, who developed haemorrhagic complications.

Case Report

A 61 year old gentleman was admitted with left sided abdominal pain for 3 days. It was not associated with any fever, loose stools, vomiting or trauma. He was a long term diabetic, hypertensive with coronary artery disease and an artificial aortic valve replacement 10 years ago. He was on lifelong anticoagulant therapy with warfarin. He had a left thalamic bleed over a year ago and also progressed to ESRD and was initiated on CAPD using Swan neck Tecknoff peritoneal dialysis catheter, and he was receiving 2L X 3 times/day of Dianead.

On examination, he was afebrile with a pulse rate of 94/min and blood pressure of 162/72 mmHg. There was no pedal edema or raised jugular venous pulse. The exit site was normal. There was a tender left hypochondrial mass of 5.5 x 2 cm. Lung sounds were normal and clear Echocardiogram revealed normally functioning prosthetic valve and no signs of vegetations.

Laboratory investigations on the day of admission showed:

Hb 12.4g/dl, total WBC count 18400 cell/Cmm, neutrophils 87.4, monocyte 3.6 lymphocyte 7.7, eosinophil 1.1, Basophil 0.2, ESR 88mm at 1 hour, platelet count 431000/Cmm

APTT ratio 3.55 seconds, APTT (patient) 91.0 seconds, APTT (control)25.6 Seconds, prothrombin time 84.1 seconds, INR 7.82.

Sodium 133mEq/L, Potassium 3.0 mEq/L, Chloride 90 mEq/L, Bicarbonate 30.7 mEq/L, Calcium 7.6 mg/dl, Phosphorous 4.2 mg/dl.

Ultrasound of the abdomen revealed a left sided rectus muscle hematoma of 6.1 x 2 cm (30-35ml)(Fig 1). There was no evidence of haemoperitoneum as the dialysis effluent was clear.

As the INR was over 7 warfarin was stopped.

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Fig 1: Ultrasound Shows rectus muscle hematoma
Recommendations for the reversal of high INR values in patients with bleeding were followed(3). Warfarin was reinitiated after INR levels came down to 2. On the fifth day he developed pain and swelling of the left knee. Hemarthrosis was suspected(Fig 2) and warfarin was discontinued. Aspiration was not attempted in view of the deranged coagulation parameters. The inflammation settled with rest, cold compresses and anti-inflammatory medication. He is doing well on CAPD five months later with no further bleed.

**Fig2: Hemarthrosis Swelling of the left Knee:**

**Discussion**

Coumadin or Warfarin Sodium is indicated for the prophylaxis and/or treatment of the thromboembolic complications associated with atrial fibrillation and/or cardiac valve replacement.

Anticoagulation for mechanical heart valve replacement can be managed with INR levels of 2-2.5 with acceptable hemorrhagic and thromboembolic events

To achieve this level of anticoagulation, a target INR of 3.0 to 4.0 is recommended. (6)

For prosthetic heart valves lifelong therapy of anticoagulant is recommended to maintain an INR of 2.5 to 3.5. (7)

In this patient a previous history of an intracranial haemorrhage and being a hypertensive warrants a closer watch on the INR levels.

As this patient had both a previous intracranial haemorrhage and a mechanical prosthetic heart valve, peritoneal dialysis is the preferred modality to treat his renal disease. Haemodialysis runs a greater risk of infective endocarditis. However Pharmacokinetic studies conducted in patients with CRF demonstrate that the nonrenal clearance of multiple drugs is reduced. Although the mechanism by which this occurs is unclear (5). Results indicate that HD is associated with marked diminution in the circulating levels of coagulation inhibitors. This is in contrast to CAPD patients who showed elevated levels of these inhibitors, despite their significant loss in the dialysate. (4)

There is recent evidence that genetic factors have a significant impact on warfarin response. Two genes, cytochrome P450 2C9 (CYP2C9) and vitamin K epoxide reductase complex 1 (VKORC1), have demonstrated a strong, consistent influence across various racial groups on warfarin dosage (13-16) and hemorrhagic complications(11,12).

It was also demonstrated that patients with reduced renal function maintained therapeutic anticoagulation (INR 2 to 3) with lower warfarin dosages independent of CYP2C9 and VKORC1 genotype after accounting for clinical factors (8).

Patients with reduced kidney function require lower dosages of warfarin, have poorer control of anticoagulation, and are at a higher risk for major hemorrhage(8). CKD and ESRD alter drug disposition by reducing systemic clearance of drugs. Patients with severe CKD and ESRD also have an increased risk for hemorrhagic complications

We recommend that a patient on warfarin with CKD undergoing CAPD must be closely monitored to maintain optimal INR and hence prevent hemorrhagic complications.

In Conclusion we present a male diabetic with prosthetic aortic valve on warfarin anticoagulation who developed abdominal wall hematoma and hemarthrosis who recovered spontaneously by discontinuation of warfarin and close monitoring.

**Reference:**


