B) BRIEF CASE REPORTS

Recurrent haemodialysis vascular access thrombosis in a patient with factor V Leiden

Nefrologia 2013;33(4):604-5
doi:10.3265/Nefrología.pre2013.Mar.11662

To the Editor:

Thrombosis of internal arteriovenous fistulas in haemodialysis patients is usually caused by peri-anastomotic stenosis or factors such as external compression or low blood pressure. The femoral vein allows rapid access in patients without vascular access who require haemodialysis. The main complications of femoral catheterisation are infection and catheter dysfunction, but it may also result in severe haemorrhage[1] or femoral vein thrombosis.[2]

The role played by inherited thrombophilia in haemodialysis vascular access thrombosis (VAT) is a debatable issue.

We report the case of a 51-year-old male on haemodialysis due to chronic renal failure secondary to obstructive lithiasic nephropathy with recurrent thrombosis of arteriovenous fistula and femoral vein, homozygous for factor V Leiden variant. Personal history: high blood pressure, gout and a previous episode of VAT: left humerocephalic fistula, which was functional for twelve months. No family history of thrombosis. The patient was admitted after another thrombosis of a right humerus median fistula, which lasted for four months. A temporary right femoral catheter was introduced without any immediate complications and haemodialysis was performed; five days later the catheter was removed due to dysfunction and the left femoral vein was cannulated. The patient complained of pain in his right thigh, which had increased in diameter. The echo-Doppler of right femoral vessels showed thrombosis of the right common femoral vein and the proximal segment of the deep femoral vein, without images suggestive of fistula or aneurysm; the CT angiogram of the thorax ruled out pulmonary thromboembolism. The patient was treated with enoxaparin and subsequently with acenocoumarol. A left humerobasilic arteriovenous fistula was performed and it continues to be functional after two years.

The study of thrombophilia prior to the start of anticoagulation therapy showed a pathological value of activated protein C resistance of 1.29 (normal:>2.1), the genetic study revealed that the patient was homozygous for factor V Leiden variant; anti-cardiolipin antibodies, antiβ2 glycoprotein I antibodies, antithrombin III, protein C, free protein S, homocysteine, lupus anticoagulant and prothrombin gene (G20210A mutation) normal/negative; no thrombocytopenia was observed.

Resistance to activated protein C is the most common cause of inherited thrombophilia in the general population and a major risk factor for venous thrombosis. Activated protein C resistance of genetic origin is usually due to a missense factor V (factor V Leiden) mutation, which causes the adenine nucleotide to be replaced by guanine at gene position 1691; in the peptide chain, this modification results in the replacement of the amino acid arginine 506 by glutamine. This mutation, which is transmitted in an autosomal dominant way with incomplete penetrance, makes factor V resistant to inhibition by activated protein C, which makes more factor available and increases coagulability.[3]

The role of factor V Leiden as a cause of VAT in haemodialysis is a subject of debate. Födinger et al.[4] studied 152 haemodialysis patients, of which 7 were heterozygous for the factor V Leiden; they did not find a higher incidence of unexplained thrombosis in these cases, although they did not rule out the possibility of homozygosity being a risk factor for VAT. Knoll et al.[5] in a case-control study did find an increased risk of VAT in heterozygous individuals for the factor V

This patient also developed femoral thrombosis after the placement of a catheter. It was considered that the femoral catheterisation had a higher incidence of thrombosis than the jugular, but a recent study shows that the incidence is similar.[6]

In this case, the thromboses appeared after starting dialysis. Therefore, it seems that the factor V Leiden acted as a risk factor in combination with other thrombogenic causes: hypercoagulability secondary to renal failure, vascular damage, stasis.[7] In conclusion, in dialysis patients with repeated VAT, the presence of inherited thrombophilia should be ruled out, in order to prevent subsequent thrombotic vascular access events.

Conflicts of interest

The authors declare that they have no conflicts of interest related to the contents of this article.

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From acute renal failure to the diagnosis of McArdle's disease

Nefrologia 2013;33(4):605-6
doi:10.3265/Nefrología.pre2013.Feb.11885

To the Editor:

McArdle's disease or glycogen storage disease type V is a hereditary autosomal recessive metabolic myopathy caused by the total or partial deficiency of an enzyme located in the skeletal muscles, myophosphorylase. Muscle involvement is a consistent feature, with renal involvement being less common.

We report the case of a 42-year-old male with previous acute renal failure (ARF) (creatinine 4.8mg/dl) secondary to severe rhabdomyolysis (creatine phosphokinase [CPK] 500,000IU/l) of unclear aetiology. At discharge, the patient had recovered renal function (creatinine 0.8mg/dl, glomerular filtration rate 93ml/min/1.73m^2) with a decrease in CPK levels to 420IU/l. He reported a history of type 2 diabetes mellitus and high blood pressure, both of which were well controlled. He complained of myalgias in distal extremities from an early age and intolerance to physical exercise. During clinical follow-up, CPK levels remained high and we ruled out pharmacological and toxic aetiologies, among others. We decided, in conjunction with Neurology, to request an electromyogram, which was unremarkable, but the muscle biopsy revealed the presence of subsarcolemmal and intermyofibrillar vacuoles with positive PAS (periodic acid Schiff) material corresponding to glycogen storage, and did not reveal activity of the enzyme myophosphorylase, which confirmed the diagnosis of a myopathy, glycogen storage disease type V. The genetic study was positive for mutation PYGM T2392C in homozygosis. McArdle's disease was the definitive diagnosis.

McArdle's disease is an uncommon but underdiagnosed condition and its prevalence is 1/167,000.[1] Symptoms appear from an early age (childhood or adolescence), although they vary according to the patient and include myalgia, muscle cramp, intolerance to exercise and muscle exhaustion when the slightest effort is exerted.[1,2] Occasionally, more than one family member has the same symptoms, which is cause for clinical suspicion, but a muscle biopsy and genetic study are necessary for confirmation. Renal involvement is uncommon,[2,3] although there have been reports of chronic renal failure due to tubulointerstitial nephropathy secondary to repeated episodes of rhabdomyolysis.[4] Some authors describe the involvement of predisposing factors, such as previous alcohol consumption and statin use.[2] Patients progress with fluctuating levels of CPK in blood, associated with muscle damage and regeneration. Severe rhabdomyolysis is uncommon, but it causes kidney damage due to the massive release of myoglobin, resulting in intratubular obstruction, acute tubular necrosis or functional impairment due to the decreased effective circulating volume caused by the retention of sodium and water in damaged myocytes.[2] The presence of residual activity of muscle phosphorylase is related to mild clinical symptoms, while in the absence of this enzyme's activity, infections and a history of vigorous physical exercise can trigger more severe rhabdomyolysis,[2,3] as was the case in our patient.

General treatment focusses on improving the quality of life of these patients, adapting their daily activity through training, physiotherapy and glucose intake just before exercise, achieving a biological adaptation to McArdle's disease.[5] Some authors recommend the administration of vitamin B6 and B12 supplements, although their use has not been linked to a clear improvement of symptoms or a decreased risk of rhabdomyolysis. The indication of renal replacement therapy meets the same criteria as other ARF entities that present with massive rhabdomyolysis.