An infrequent cause of hypertriglyceridemia in kidney transplantation

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To the editor: Cardiovascular disease is the most common cause of mortality in long-term transplant recipients; it is therefore important to address associated risk factors such as hyperlipidemia. The etiology of hypertriglyceridemia is influenced by obesity, diabetes mellitus, drugs (tacrolimus, β-blockers, corticosteroids, etc., alcohol consumption, hypothyroidism, renal failure, nephrotic syndrome and HIV infection.[1] Hypertriglyceridemia in the order of 2000 mg/dl is almost always of a secondary or familial origin.

Heparin is widely used as effective prophylaxis and treatment in patients with thrombosis. Independently of its anticoagulant action, the administration of heparin gives rise to two opposite phenomena regarding the effect of the drug on the patient lipid profile, derived from its action upon lipoprotein lipase: in the first hour, heparin stimulates the enzyme[2] and reduces the triglyceride levels, while posteriorly the enzyme is inhibited and the triglyceride levels consequently increase.[3] Although controversial, a number of studies have reported the favorable effects of low molecular weight heparins (LMWHs) upon lipid profile.[4,5]

We report the case of a 37-year-old male with a history of arterial hypertension, hypercholesterolemia, terminal chronic renal failure secondary to reflow nephropathy and a first kidney transplant in 1984, with a return to hemodialysis in 2002 because of chronic graft nephropathy. In 2005, a second dead donor kidney was grafted, with the introduction of quadruple immunosuppression in the form of basiliximab, corticosteroids, mycophenolate mofetil and tacrolimus. The subsequent course proved favorable, with creatinine clearance 75 ml/min (Cockroft-Gault). Four months after transplantation, the patient developed bilateral deep venous thrombosis and pulmonary thromboembolism. At that time kidney function remained stable, with normal lipid metabolism (cholesterol 213 mg/dl, triglycerides 163 mg/dl) and thyroid hormones, and normal thrombophilia findings. Treatment was provided in the form of tacrolimus, mycophenolate mofetil, prednisone, bisoprolol, furosemide and omeprazole. Anticoagulation was started with dalteparin 18,000 U/24 hours. The posterior controls showed a gradual increase in triglyceride levels (fig. 1); gemfibrozil was therefore started at increasing doses, associated to atorvastatin – though with scant response. Due to the suspicion of hypertriglyceridemia secondary to dalteparin treatment, the latter was replaced with acenocoumarol. This was followed by a decrease in triglyceride levels, as a result of which the lipid-lowering medication was gradually withdrawn (fig. 1).

Hypertriglyceridemia is a side effect of heparin administration. Our patient was obese, with grade II renal failure, and was subjected to antihypertensive treatment (bisoprolol) and immunosuppression (corticosteroids and tacrolimus). All these hypertriglyceridemia-contributing factors were present before the start of treatment with dalteparin. From introduction of the latter drug, the triglyceride levels were found to be uncontrollable despite intensive medical care. Only dalteparin withdrawal proved effective.

We therefore conclude that dalteparin, one of the LMWHs with the most beneficial effects upon patient lipid profile,[6] was the cause of severe hypertriglyceridemia in our case. This is an unusual side effect of LMWHs that nevertheless must be taken into consideration by physicians, in view of the wi-

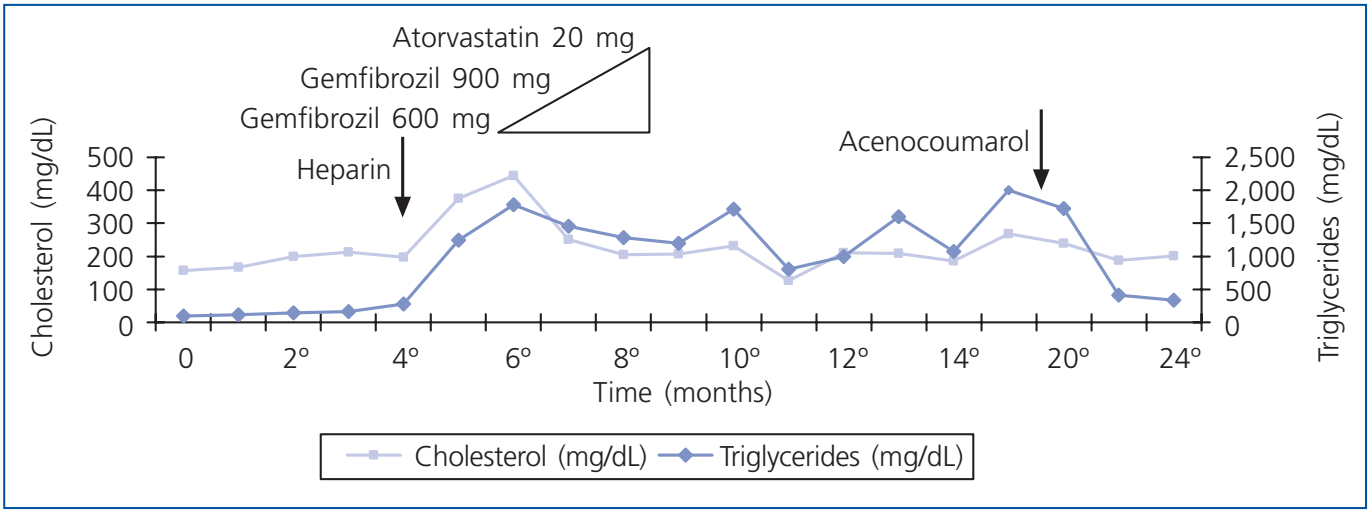

Figure 1. Course of lipid metabolism after transplantation.

despread use of both LMWHs and unfractionated heparins. In addition, their use in patients at high cardiovascular risk must be carefully evaluated.

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Delayed presentation of a femoral pseudoaneurysm after venous hemodialysis catheter insertion

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To the editor: The use of central venous catheters for temporary vascular access in hemodialysis may occasionally result in arterial puncture.[1] Nevertheless, the frequency of clinically significant arterial damage after femoral catheterization in hemodialysis is low. Such damage may give rise to thrombosis, bleeding, pseudoaneurysms or arteriovenous fistulas.[2-4] We describe a case of delayed presentation of a right femoral arterial pseudoaneurysm following failed venous catheterization for hemodialysis. To our knowledge, only one similar case has been reported to date.[2]

A 41-year-old male was admitted with advanced chronic renal failure of indeterminate origin. The personal history included poorly controlled arterial hypertension and dyslipidemia. The start of renal replacement therapy was required. Ultrasound was used to identify the anatomical relationship between the femoral artery and vein. In both extremities the vein was located posterior to the artery, except over a short trajectory in the region of the inguinal fold, where it was found to be positioned slightly medial. Arterial puncture was observed on one attempt, as a result of which compression was applied and the left femoral vein was finally catheterized. Dialysis without anticoagulation was started in the first two sessions. After 48 hours, and following normal inguinal exploration findings, low molecular weight heparin was resumed as antithrombotic prophylaxis, with doses adjusted to renal function. A few days later during a week-end, the patient participated in a race despite indications to avoid such activities. Twenty days after catheterization he developed sudden right inguinal pain. Inguinal exploration revealed a hard and pulsatile mass with a slight murmur and intense pain in response to palpation. The peripheral pulses were preserved. Right femoral artery Doppler ultrasound confirmed the presence of a 17-mm right pseudoaneurysm. Initial treatment included strict bed rest with an inguinal compressive bandage. However, one week later the pseudoaneurysm was seen to have increased to 21 mm in size, with persistence of the pain. Aneurysm intracavitary thrombin injection under ultrasound guidance was thus performed (100 IU). This resulted in thrombosis of the pseudoaneurysm, without evidence of recurrences on occasion of the posterior ultrasound controls.

An arterial pseudoaneurysm is a pulsatile hematoma resulting from traumatic dissection of the arterial wall, creating a communication between the vascular lumen and the surrounding tissue, with the extravasation of arterial blood. The use of anticoagulants, poorly controlled arterial hypertension, vasculopathy (arteriosclerotic or of an infiltrative nature), and even the technique and arterial trajectory used for puncture can give rise to such pseudoaneurysms.[5-7] The clinical suspicion is established 6-48 hours after arterial puncture, with the identification of a painful, pulsatile mass in the inguinal zone.[7] In our patient, the administered low molecular weight heparin facilitated the delayed presentation of the complication, which was triggered by walking. Doppler ultrasound is the diagnostic technique of choice, and is moreover able to evaluate the evolution of the size of the lesion. Although surgical repair may prove necessary in cases where there is a risk of severe bleeding or limb ischemia, conservative management is initially recommended. Strict bed rest, the suspension of anticoagulation, and compression applied manually in the form of an inguinal bandage or guided by ultrasound over the aneurysmal neck can resolve over 75% of all cases.[5,7] The intra-aneurysmal injection of procoagulating substances such as thrombin represents a treatment option allowing immediate resolution without the need to suspend anticoagulation – though it is not without side effects (generally of an anaphylactic nature).[6]

It is difficult to prevent complications of this kind, considering the technique employed and the antithrombotic indications of our patients. However, compression and prolonged repose after iatrogenic arterial puncture, and the identification and early management of the complications are critical considerations for avoiding traumatic lesions with significant clinical repercussions.

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