microalbuminuria/proteinuria before and during treatment with anti-VEGF-A could help to detect RSE early. In view of the diagnosis of severe RSE, we consider performing a renal biopsy to be key in early detection. Quantifying GFR, microalbuminuria/proteinuria and plasma VEGF-A before and after each cycle/injection of anti-VEGF-A would provide useful data for the prevention, diagnosis and treatment of RSE. Moreover, free-circulating VEGF-A could be used as an early biomarker of RSE secondary to treatment with anti-VEGF-A.

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Reaction to synthetic membranes in hemodialysis☆

Reacción a membranas sintéticas en hemodiálisis

Dear Editor,

Although the incidence of hypersensitivity reactions in haemodialysis (HD) is low and their severity varies, these reactions are not rare and can be lethal.[1] Recently several cases associated with the use of synthetic membranes have been reported.[2] These reactions are either mild to moderate, with minimal clinical repercussions that go unnoticed, or severe with a wide range of symptoms which could prove lethal.[1,2]

We report the case of an 80-year-old man with chronic kidney disease of vascular aetiology, receiving treatment with HD since January 2016.

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The patient is an ex-smoker with a personal history of hypertension, hypercholesterolaemia, hyperuricaemia, anaemia and hyperparathyroidism secondary to kidney disease, intermittent claudication, chronic obstructive pulmonary disease, depressive syndrome and treated lentigo maligna. Although the patient has no allergic history, he does have a dermatological history of sebaceous hyperplasia and lichenoid pityriasis treated with paraben- and cortisone-free moisturising lotions.

On treatment with manidipine, bisoprolol, torasemide, allopurinol, ezetimibe/simvastatin, paricalcitol, calcifediol, sevelamer carbonate, salmeterol/fluticasone, amitriptyline, erythropoietin and intravenous iron sucrose.

The patient has a poorly developed left humeral-cephalic arteriovenous fistula, and is dialysed through a permanent right jugular catheter.

He began conventional HD due to uraemic symptoms. Ultrapure water and a gamma-sterilised polyethersulfone dialyser with high permeability (Phylther-LF21SD®) were used. In the first HD session, the patient presented with severe bronchospasm with hypotension and desaturation at the beginning of the session. High-flow oxygen therapy, hydrocortisone and bronchodilators were prescribed: the symptoms gradually disappeared within a few minutes of administration, without interrupting the HD session.

No wheezing was observed in the lung auscultation and no condensation was noticed on the chest X-ray. The electrocardiogram and laboratory tests, which included leukocyte and platelet counts, myocardial damage enzymes and acute-phase reactants, were normal.

The bronchospasm symptoms reappeared in successive sessions, although they were milder and gradually disappeared with oxygen therapy. The patient's symptoms were attributed to an intercurrent episode of upper respiratory tract infection. After the first month, the HD sessions were followed by dyspnoea and bronchospasm after the session: the episodes gradually increased in severity and duration. At the beginning of each dialysis, the patient presented with desaturation, excessive sweating, tachypnoea and blood pressure >200/100 mmHg; before the session, blood pressure was 130/80 mmHg. Premedication was prescribed with hydrocortisone, intravenous methylprednisolone, antihistamines and inhaled bronchodilators, with the patient being asymptomatic and normotensive at the end of the sessions.

On suspecting an adverse reaction to the dialyser, we switched to steam-sterilised polysulfone and PVP membranes (Helixona-FX80®), but the patient presented with the same symptoms. We then changed the anticoagulation regimen, suspended iron therapy, and prepared the patient by administering abundant serum, but the episodes continued. No eosinophilia, increased IgE or anti-heparin antibodies were observed, while cultures of the dialysis fluid and endotoxins were negative. The material used was free of ethylene oxide and latex. There were no other cases in the unit.

We finally decided to replace the synthetic membranes with a cellulose triacetate dialyser (Sureflux®-21L, Nipro). Since then the patient has not experienced any similar events.

The case reported falls within the type A anaphylactic hypersensitivity reactions (not measured by IgE), because of the time of onset, i.e. within the first few minutes of HD after the blood had come into contact with the components of the extracorporeal circuit, and the type of symptoms.[3] Other causes of anaphylactic reaction such as endotoxin retrofiltration,[4] hypersensitivity to iron,[5] anti-heparin antibodies,[6] sterilisation methods[7,8] or use of angiotensin-converting enzyme inhibitors[9] were ruled out. The reaction was attributed to the blood coming into contact with synthetic materials.

Interestingly, although the patient initially presented with a classic triad with severe symptoms, in successive sessions the symptoms were mild and went unnoticed. Although the reaction was subsequently repeated with greater severity and duration in each dialysis, with a potential increase in severity, the symptoms disappeared in all cases after the first 90–120 min of each session, without interrupting the dialysis treatment.

As in other published cases, respiratory symptoms were the most common, with all symptoms disappearing after substituting the synthetic dialyser with a cellulose triacetate one.[2,10] This material causes fewer hypersensitivity reactions, probably due to a lower activation of the platelet membrane receptor (GpIIb/IIIa), with less alteration of the aggregation, although the mechanisms involved are still unclear.[2]

We report our experience with a case of hypersensitivity to synthetic dialysers with a peculiar clinical course, which included episodes of different severity, which is why it went unnoticed. Because of the potential life-threatening risk involved in this type of reaction, we emphasise the importance of suspecting them when the clinical symptoms or course are unusual.

Conflicts of interest

The authors declare no potential conflicts of interest related to the content of this article.

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Alemtuzumab in paediatric kidney transplantation, five years' experience at the Pablo Tobón Uribe Hospital in Medellín, Colombia☆

Alemtuzumab en trasplante renal pediátrico: experiencia de 5 años en el Hospital Pablo Tobón Uribe de Medellín, Colombia

Dear Editor,

Kidney transplantation is the treatment of choice in the paediatric population with end-stage renal disease (ESRD).[1] There are few studies evaluating the long-term effectiveness and safety of alemtuzumab for kidney transplantation in the paediatric population.

This is a descriptive study conducted at the Hospital Pablo Tobón Uribe (HPTU). All kidney transplant patients under 18 years of age from 2005 to 2012 who received alemtuzumab as induction therapy were included.

The immunosuppression protocol used included administering alemtuzumab and a triple maintenance therapy, with a calcineurin inhibitor (tacrolimus or cyclosporine), antimetabolite (azathioprine or mycophenolate), and steroids. This study was approved by the Hospital Pablo Tobón Uribe ethics committee.

During 2005–2012, 21 paediatric kidney transplants were performed with alemtuzumab received as the induction therapy; 57.1% were boys, and the median age was 13 years (p25–75: 9–15); malformations of the urinary tract were the most common cause of chronic kidney disease (42.9%). The serological status for cytomegalovirus was recipient negative/donor positive in 23.8%, recipient positive/donor positive in 71.4%, and recipient positive/donor negative in 4.8%. The median cold ischaemia time was 18 h (p25–75: 12–20).

The 6-, 12-, 24-, 36-, and 60-month patient survival rate after the kidney transplant was 100%, 100%, 95.2%, 95.2%, and 95.2%, respectively. One patient died during the study. Post-transplant 6-, 12-, 24-, 36-, and 60-month kidney graft survival were 95.2%, 95.2%, 90.5%, 85.7%, and 85.7%, respectively.

The median GFR 1 week, and 1, 2, and 5 years after the transplant were: 72.5 ml/min (p25–75: 45–94; $n = 21$), 70.5 ml/min (p25–75: 61–88.5; $n = 20$), 89 ml/min (p25–75: 66–108; $n = 19$), and 76 ml/min (p25–75: 61–101.5; $n = 14$), respectively. At 1, 2, and 5 years of follow-up, 28.6%, 19.1%, and 29.4% of patients, respectively, presented a GFR under 60 ml/min/1.73 m^2. By grouping the patients according to CKD stage, we found that, during the 5-year follow-up, a high percentage of patients were in stage 1 and 2 (Fig. 1). Table 1 describes the main complications found.

This study describes the clinical outcomes of paediatric kidney transplant patients who received alemtuzumab as induction therapy. Among the most important findings, a good kidney graft survival stands out, with a low incidence of rejection and few complications. One patient who lost the graft 18 months after transplantation died. The patient was admitted, placed on haemodialysis and died due to decompensated heart failure. The other three patients who lost the kidney graft were secondary to acute rejection, due to poor adherence to the immunosuppressant therapy.

Other benefits that we found with the use of this therapy was GFR stability over time. Furthermore, in our study, only 28.6%, 19.1%, and 29.4% of the patients had a GFR under 60 ml/min/1.73 m^2 at 1, 2, and 5 years. According to this, most

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