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Severe Parkinsonism with respiratory failure in peritoneal dialysis patient☆

Parkinsonismo severo con insuficiencia respiratoria en paciente de diálisis peritoneal

Dear Editor,

Patients with chronic kidney disease (CKD) are at an increased risk of drug-induced neurotoxicity.[1] Parkinsonism appears to be more common in patients with CKD, with a higher annual incidence rate in uraemic patients compared with non-uraemic patients.[2]

The drugs that most frequently cause Parkinsonism are calcium antagonists, orthopramides/benzamides and antipsychotics/neuroleptics.[3] Compared with Parkinson's disease, patients with drug-induced Parkinsonism are predominantly female and elderly.[3] Sulpiride is a drug used to treat dizziness, which often induces Parkinsonism.[4]

We report the case of a 52-year-old woman with systemic lupus erythematosus (SLE) and associated antiphospholipid syndrome, steroid diabetes and hypertension. The patient had CKD secondary to lupus nephropathy and began continuous ambulatory peritoneal dialysis (CAPD) in 2014, with a regimen of 4 daytime exchanges of 2000 ml: 2 Physioneal 40® 1.36% and 2 Physioneal 40® 2.27% (Baxter), with a dry night.

She went to her clinic due to a 72-h catarrhal disease and began treatment with levofloxacin 500 mg, one tablet per day. After the first dose she presented with dizziness syndrome for which she was given an intramuscular ampoule of sulpiride 100 mg, followed by 50 mg/8 h orally.

At 36 h she experienced respiratory distress with a baseline oxygen saturation of 87%. She was given oxygen therapy, intravenous (IV) corticosteroids and inhalers, without clinical improvement. During the transfer to the hospital, she presented with generalised dystonic movements. At the A&E she had serious difficulty breathing. The laboratory tests revealed mild hypocalcaemia (total corrected calcium of 8.2 mg/dl and arterial ionised calcium of 3.6 mg/dl), and she was given an IV calcium gluconate ampoule for possible tetany. No significant alterations were observed in the chest X-ray or brain CT scan.

Due to the persistence of respiratory insufficiency and generalised dystonic movements, consultation with the intensive care unit (ICU) was requested. Upon arrival, the patient presented with generalised dystonia with predominantly cervicofacial involvement and language impairment, in addition to severe ventilatory impairment.

Five (5) mg of IV biperiden were administered, which resolved the acute dystonic symptoms and improved pulmonary ventilation. Given the risk of recurrence of the symptoms and the lack of information on the elimination of sulpiride by peritoneal dialysis, it was decided to admit the patient to the ICU and to perform a haemodialysis session using a temporal–femoral catheter, with a 4008® dialysis monitor (Fresenius Medical Care), Evodial 1.6® dialyser (Gambro), for 3 h, with a blood flow of 300 ml/min and a bath flow of 500 ml/min, without ultrafiltration.

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Forty-eight (48) hours after the start of monitoring, the patient was transferred to the nephrology ward, where the usual CAPD regimen was restarted. After 4 days she was discharged with a final diagnosis of severe Parkinsonism with respiratory insufficiency secondary to sulpiride, reversed with biperiden and haemodialysis.

We know that sulpiride is an antipsychotic drug used to treat benign paroxysmal positional vertigo. It works by blocking dopamine D2 receptors. It has an oral bioavailability of 25–35%, with a renal elimination of 92%. The dose should therefore be reduced in kidney failure, with partial elimination by haemodialysis, because less than 40% binds to plasma proteins and its volume of distribution is 0.94 l/kg.[5]

In case of overdose, extrapyramidal symptoms may occur.[5] Neuroleptic malignant syndrome is a potentially fatal, yet very rare, complication.[6] There is no specific antidote for sulpiride. Although treatment is only symptomatic, support measures should be established. In case of severe extrapyramidal symptoms, anticholinergics should be administered.[5]

Biperiden is an anticholinergic, antimuscarinic drug indicated for Parkinson's disease and drug-induced extrapyramidal symptoms. No adjustment is required for kidney failure.[7]

After reviewing the literature, we saw that Nishioka et al. reported a case of neuroleptic malignant syndrome and acute kidney failure in a patient treated with thioridazine and sulpiride. Renal function and neurological symptoms were resolved by discontinuing the drugs and performing 17 haemodialysis sessions.[8]

Although there are no data on the elimination of sulpiride by peritoneal dialysis, data from the elimination of a drug from the same family, such as metoclopramide, show minimal elimination (less than 0.1%) in a CAPD regimen of 4 exchanges of 2000 cc per day.[9]

Therefore, given the severity and clinical course of our patient, we recommend exercising caution when using sulpiride in patients undergoing peritoneal dialysis, especially in women and the elderly, and constantly adjusting the dose.

In case of sulpiride-induced Parkinsonism in patients on CAPD, we recommend using biperiden and performing conventional haemodialysis to eliminate the drug effectively.

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