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Clinical case: peritoneal dialysis patient with cloudy peritoneal fluid following administration of calcium antagonists

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To the Editor,

Cloudy peritoneal fluid (PF) from peritoneal dialysis (PD) may be due to increases in the cellular and non-cellular constituents of the peritoneal fluid. Polymorphonuclear leukocytes may increase by intraperitoneal or juxtaperitoneal inflammation or even in the context of the chemical peritonitis induced by drugs. The increase in eosinophils points at a response to peritoneal air or an allergic reaction to one of the dialysis system's components. The presence of red cells can be due to many causes. Monocytes or malignant cells are very rare. Non-cellular causes with negative cultures are limited to fibrin or high triglycerides: lymphatic obstruction, pancreatitis, catheter traumatism, calcium antagonists (CA), dihydropyridine or superior vena cava syndrome.

The presence of chyloperitoneum with lercanidipine, manidipine and some case of nifedipine has been described in the literature. In 1993, the presence of cloudy PF secondary to the administration of manidipine was described in 5 of the 8 patients undergoing PD within the first 24 hours after starting treatment (10-20mg/day). It was difficult to distinguish whether the cloudy PF was caused by the drugs or an infection, but it was noted that the patients did not present with any usual clinical signs (nausea, vomiting, fever or abdominal pain), leukocytes <10 cells/μl and negative culture for fungal infections, aerobic and anaerobic bacteria. Triglyceride figures were between 120mg/dl and 320mg/dl. In no case were the serum triglyceride levels modified before or after manidipine was taken, but the triglyceride figures did normalise in PF once the drug was withdrawn.

After that, a retrospective study with 251 patients in continuous ambulatory peritoneal dialysis (CAPD) treated with CA observed cloudy PF in 19 cases. Four patients that received CA had cloudy PF: with benidipine (two of two patients [100%]), with manidipine (15 of 36 [42%]), with nisoldipine (1 of 11 [9%]) and nifedipine (1 of 59 [0.6%]). None of the patients that took nicardipine (25), nilvadipine (7), nitrendipine (2), barnidipine (1) or diltiazem (8) presented with cloudy fluid.

An expert group from Taiwan described the presence of chyloperitoneum in 14 of 222 patients, associated with lercanidipine.

We present the case of a 44-year-old female with chronic kidney failure (CKF) secondary to type I membranoproliferative glomerulonephritis, on the CAPD programme since June 2010, without any previous bacterial peritonitis episodes. She was treated with furosemide 160mg/day, olmesartan 40mg/day, ramipril 10mg/day, nifedipine OROS 60mg/day, bisoprolol 10mg/day, doxazosin 16mg/day, calcium carbonate 3g/day, lanthanum carbonate 1500mg/day, rosuvastatin 5mg/day, acetylsalicylic acid (ASA) 100mg, Nepro® and aranesp 60μg/fortnightly.

She came for a consultation because she had cloudy PF but she did not present with fever or abdominal pain. Two days before, her treatment for high blood pressure had been modified, changing from nifedipine to manidipine, in an attempt to improve her chronic peripheral oedemas. Bacterial peritonitis was dismissed and she was given an appointment 48 hours later for a smear check. She had milk-like cloudy PF with the presence of 4 leukocytes/μl and triglycerides (119mg/dl). The cholesterol levels in the plasma and the triglycerides were normal (180mg/dl and 76mg/dl, respectively). Given that chyloperitoneum secondary to taking manidipine was suspected, this drug was suspended and a new test was taken 24 hours later. The PF was clear and free of triglycerides.

Given that the patient's high blood pressure continued to be severe, aliskiren at a dosage of 300mg/day and nifedipine OROS was reintroduced at a dose of 30mg/day.

Therefore, we can conclude that the milk-like PF in our patient was related to introducing manidipine, given that following its withdrawal the appearance and PF triglycerides levels normalised. However, she had been previously treated with nifedipine and did not present with these changes, which also coincides with the results obtained in previously cited studies.

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