Hypertension is not a limiting factor to evaluate the use of DDAVP because of falsely elevated blood pressure due to anxiety. We recommend careful use of DDAVP in hypertensive patients due to a hypervolemia without structural heart disease, and we think this situation could lead role in the hypertensive pulmonary edema.

BIBLIOGRAFÍA

1. Manno C, Bonifati C, Torres DD, Campobasso N, Schena FP. Desmopressin acetate in percutaneous ultrasound-guided kidney biopsy: a randomized controlled trial. Am J Kidney Dis. 2011;57:850–5.
2. Stoof SC, Cnossen MH, de Maat MP, Leebeek FW, Kruip MJ. Side effects of desmopressin in patients with bleeding disorders. Haemophilia. 2016;22:39–45.
3. Hergesell O, Felten H, Andrassy K, Kühn K, Ritz E. Safety of ultrasound-guided percutaneous renal biopsy: retrospective analysis of 1,090 consecutive cases. Nephrol Dial Transplant. 1998;13:975–7.
4. Mannucci PM, Vicente V, Alberca I, Sacchi E, Longo G, Harris AS, et al. Intravenous and subcutaneous administration of desmopressin (DDAVP) to hemophiliacs: pharmacokinetics and factor VIII responses. Thromb Haemost. 1987;58:1037–9.
5. FDA ALERT [12/4/2007]: Desmopressin acetate (marketed as DDAVP nasal spray, DDAVP rhinal tube, DDAVP, DDVP, minirin, and stimate nasal spray).
6. Bertholini DM, Butler CS. Severe hyponatraemia secondary to desmopressin therapy in von Willebrand's disease. Anaesth Intensive Care. 2000;28:199–201.

Ummu Korkmaz, Erol Demir*, Halil Yazici, Mehmet Sukru Sever

Division of Nephrology, Department of Internal Medicine, Istanbul Faculty of Medicine, Istanbul University, Istanbul, Turkey

* *Corresponding author.*
E-mail address: eroldemir83@yahoo.com (E. Demir).

http://dx.doi.org/10.1016/j.nefro.2016.11.008

Serratia marcescens, *Morganella morganii*, *Klebsiella oxytoca* related peritonitis attacks in a patient on automated peritoneal dialysis: A case report

Serratia marcescens, *Morganella morganii*, *Klebsiella oxytoca* relacionados con ataques de peritonitis en un paciente en diálisis peritoneal automatizada: Un caso

Dear Editor,

Bacterial peritonitis is a common complication of peritoneal dialysis.[1] We report here a case presented with peritonitis attacks caused by rarely reported unusual pathogens, probably related with poor home environment and hygienic conditions.

A 57-year-old female patient had a history of end-stage renal disease secondary to hypertensive nephrosclerosis and undergone dialysis for 4 years. She was sharing a small house in poor hygienic conditions with eleven other family members with low socioeconomic status. Five months after the initiation of automated peritoneal dialysis (APD), the patient presented with abdominal pain and nausea to our PD clinic. She was febrile (38 °C), had involuntary abdominal guarding and rebound tenderness on physical examination. Dialysate white blood cell count was 1100/mm^3 (79% neutrophils). Empiric antibiotherapy was initiated with intraperitoneal cefazolin (1 g/day) and oral ciprofloxacin (250 mg every 12 h).

A pure growth of *Serratia marcescens* was obtained in both different culture media. The organism was resistant to cefazolin, ceftriaxone, piperacillin/tazobactam, but sensitive to cefepime. Cefazolin was stopped; cefepime could not be used due to a drug shortage; instead, intraperitoneal gentamicin (0.6 mg/kg/day). Oral ciprofloxacin was also continued based upon the susceptibility results. Following the treatment modification, high-sensitivity CRP level decreased from 240 mg/L to 9 mg/L. Peritoneal effluent became clear and drainage fluid leukocyte count was 100/mm^3 (10% neutrophils) on the third week of admission.

The patient was readmitted to the hospital with similar complaints 7 months after the first peritonitis attack. Peritoneal fluid leukocyte count was found to be 17 000/mm^3 and empiric antibiotherapy was initiated with intraperitoneal cefazolin (1 g/day) and gentamicin (0.6 mg/kg/day). Dialysate cultures showed the growth of *Morganella morganii*, resistant to cefazolin, cefuroxime but sensitive to cefepime, gentamicin. Cefazolin was stopped and gentamicin was continued

for 21 days. The clinical findings and laboratory results were improved during the follow-up.

The patient also had two more peritonitis attacks after this episode, both caused by *Klebsiella oxytoca* 4 and 8 months later, respectively. These attacks were treated successfully with cefazolin and gentamicin, as isolated pathogen was susceptible to both.

Enterobacteriaceae accounts for over 10% of cases of peritoneal dialysis associated peritonitis. Among all the gram-negative infections, *S. marcescens* peritonitis has the worst outcome. *Serratia* is an opportunistic pathogen causing nosocomial infections and is one of gram-negative organisms which have inducible beta-lactamase genes known as AmpC and summarized by the acronym SPICE (*Serratia*, *Providencia/Pseudomonas*, *indole-positive Proteus species*, *Citrobacter*, *Enterobacter*). Peritonitis by *S. marcescens* is not common and there are only few case reports in the literature, usually in diabetic patients.[1]

Isolated organism during the first peritonitis attack of our patient had multiple drug resistance. In this case, adequate clinical response was only achieved with combination of gentamicin and ciprofloxacin, as reported in a previous report.[2]

M. morganii is a Gram-negative bacteria, also a rare cause of peritonitis. It has been reported as an opportunistic pathogen and associated mainly with urinary tract infections, bacteremia and sepsis. *M. morganii* is naturally sensitive to aminoglycosides as in our case. However, the widespread use led to increasing resistance to third-generation cephalosporins.[3] *K. oxytoca* peritonitis has been reported in a patient with cardiac ascites and another patient on continuous ambulatory PD (CAPD).[4] Both *M. morganii* and *K. oxytoca* tend to cause peritonitis in a polymicrobial fashion.[5] However in our case, they were both isolated as a single pathogen.

In summary, we present a rare case of peritonitis attacks caused by *S. marcescens*, *M. morganii* and *K. oxytoca*. Antibiotic options should be chosen carefully for peritonitis with these pathogens due to their ability to produce beta lactamase, which often complicates the therapy. We think that low socioeconomic status, poor home environment and hygienic conditions increase the peritonitis rates. Although modification of these factors may not be possible, we believe that more frequent and careful education of the patient and the family members under such conditions can improve patient care.

BIBLIOGRAFÍA

1. Nakamoto H, Hashikita Y, Itabashi A, Kobayashi T, Suzuki T. Changes in the organisms of resistant peritonitis in patients on continuous ambulatory peritoneal dialysis. Adv Perit Dial. 2004;20:52–7.
2. Tzamaloukas AH. Peritoneal fluid neutrophil counts and cultures after intraperitoneal infusion of urokinase for relapsing *Serratia peritonitis*. Perit Dial Int. 1990;10:181.
3. Tsai MT, Yeh JT, Yang WC, Wu TH. CAPD-related peritonitis caused by *Morganella morganii*. Perit Dial Int. 2013;33:104–5.
4. Pascual J, Sureda A, Garcia-Hóz F, Erdozain JC, Perez-Hernandez F, Boixeda D. Spontaneous peritonitis due to *Klebsiella oxytoca* in a patient with cardiac ascites. Am J Gastroenterol. 1988;83:1313–4.
5. Windpessl M, Prammer W, Asböck R, Wallner M. More on peritonitis by *Morganella morganii*. Perit Dial Int. 2013;33:467–8.

Irem Sarihan [a], Erol Demir [a,*], Seniha Basaran [b], Yasar Caliskan [a], Semra Bozfakioglu [a]

[a] *Division of Nephrology, Department of Internal Medicine, Istanbul Faculty of Medicine, Istanbul University, Istanbul, Turkey*
[b] *Department of Infectious Diseases and Clinical Microbiology, Istanbul Faculty of Medicine, Istanbul University, Istanbul, Turkey*

[*] *Corresponding author.*
E-mail address: eroldemir83@yahoo.com (E. Demir).

http://dx.doi.org/10.1016/j.nefro.2016.11.009