Is polyomavirus BK the cause of hemorrhagia cystopathy in patients who undergo allogeneic hematopoietic progenitor cell transplantation?

¿Es el poliomavirus BK la causa de cistopatía hemorrágica en los pacientes sometidos a trasplante de progenitores hematopoyéticos alogénicos?

Dear Editor,

Hemorrhagic cystitis (HC) is characterized by painful hematuria attributed to inflammation of the bladder urothelium. The incidence is 12.2%. The clinical characteristics of HC range from microscopic hematuria to severe bleeding with clot retention and even renal failure. It is an important cause of occasional morbidity and mortality in patients undergoing bone marrow transplant. Several predisposing factors have been associated.

Infection or reactivation of human polyomavirus BK is considered as consistent risk factor for developing this disease, attributing late onset HC in patients undergoing transplant of allogeneic hematopoietic progenitors.

Primary polyomavirus infection is usually asymptomatic and is acquired in childhood through the upper respiratory tract. Reactivation may occur in conditions of immunosuppression, such as bone marrow and kidney transplants. Polyomavirus BK has classically been considered the cause of nephropathy in renal transplant patients and subtype I has specifically been associated with HC in transplanted patients of hematopoietic progenitors.

Between 50 and 100% of patients with transplant of hematopoietic progenitors will have viruria BK, while the incidence of HC is well below that figure.

Our question about the causality of HC by the polyomavirus BK is based on the following:

- In a study conducted at our center on hemorrhagic cystic disease in transplanted patients of allogeneic hematopoietic progenitors between 2010 and 2013 (97), we observed an incidence of 15%, with a positivity of the polyomavirus BK of 67%.
- The positivity or negativity of the BK polyomavirus determination in urine by means of polymerase chain reaction (PCR) techniques is not correlated with the clinical resolution of episodes of hemorrhagic cystitis.
- In the pathological study of bladder tissue obtained during transurethral resection, by immunohistochemical staining for SV40, marked nuclear positivity was observed in many of the surface urothelial cells with negativity of endothelial cells, as shown in Fig. 1.

We therefore consider that the positivity of polyomavirus BK in urine of these patients is only an incidental finding, with no direct causality with the episode. Therapeutic efforts should be directed to maintain adequate platelet level and supportive measures. However, prospective studies with larger sample size should be brought to term to reinforce these conclusions.

References


R. Martinez Rodriguez a,∗, C. Carrato Moñino b, E. Carballido Lopez a, L. Ibarz Servio b

a Servicio de Urología, Hospital Universitario Germans Trias i Pujol, Badalona, Barcelona, Spain

b Servicio de Anatomía Patológica, Hospital Universitario Germans Trias i Pujol, Badalona, Barcelona, Spain

∗ Corresponding author.
E-mail address: Hugomar2@yahoo.es (R. Martinez Rodriguez).