

BK VIRUS HAEMAGGLUTININ IN URINE OF A PATIENT WITH BK VIRUS INFECTION

F. Taguchi, K. Hara, J. Kajioka, D. Nagaki

Department of Microbiology, Kitasato University, School of Hygienic Sciences, Sagamihara-shi, Kanagawa-ken, Japan

Received August 29, 1979

BK papovavirus (BKV) was first isolated from the urine of a patient after renal transplantation (1). BKV infections were thereafter observed in patients with diseases characterized by immunological dysfunction (2) except in pregnant women (3). The isolation of BKV is not always successful, since BKV multiplies slowly and induces no clear cytopathic effect in cultures of established cell lines. A patient with systemic lupus erythematosus (SLE) was found to be a case of BKV infection (4). We attempted to demonstrate BKV specific haemagglutinin in the urine of that patient.

About 150 ml of early morning urine was collected from the SLE patient (4). The urine sediment was collected by centrifugation at 1,000 rev/min for 10 min. The "sediment" was suspended in 1.5 ml of Hanks' solution. The supernatant was centrifuged again at 30,000 rev/min for 2 hr. The precipitate was suspended in 1.5 ml of Hanks' solution to form the "pellet" sample. The "sediment" was sonicated at 20 KHz for 3 min to destroy the cells. The haemagglutination (HA) test for BKV was performed by the microtitre method with human 0 erythrocytes at 4 °C (1, 3).

A HA test for the demonstration of BKV specific haemagglutinin was performed on the "sediment" and "pellet" samples. HA of human blood cells was positive up to a 1 : 40 dilution for the "sediment" and 1 : 1, 280 dilution for the "pellet" sample. This HA activity was inhibited to the same extent as BKV by anti-BKV immune rabbit serum. The HA activity was not inhibited with normal rabbit serum. The HA agent detected was serially cultivated in HEL-R66 cells (5) and was specifically neutralized by anti-BKV immune serum (6).

The results indicate that a rapid diagnosis of BKV infection is possible. However, the urine of patients with immunological malfunction contains large amounts of impurities at times and the possibility of the application of HA tests is limited with such urine. One problem which will have to be investigated in the future is the time and the period at which the HA substance can be detected in patients with BKV infection. In the SLE patient, an extremely large amount of HA substance was excreted in the urine for about one month.

This study was supported in part by a grant from the Intractable Disease Division, Public Health Bureau, Ministry of Health and Welfare, Japan.

References

1. Gardner, S. D., Field, A. M., Coleman, D., and Hulme, B., *Lancet* 1 : 1253, 1971.
2. Padgett, B. L., and Walker, D. L., *Prog. med. Virol.* 23 : 1, 1976.
3. Taguchi, F., Nagaki, D., Saito, M., Haruyama, C., Iwasaki, K., and Suzuki, T., *Japan. J. Microbiol.* 19 : 395, 1975.
4. Taguchi, F., Hara, K., and Nagaki, D., *Acta virol.* 22 : 513, 1978.
5. Taguchi, F., Toba, M., and Tada, A., *Arch. Virol.* 60 : 347, 1979.
6. Taguchi, F., Hara, K., Kajioka, J., and Nagaki, D., *Microbiol. Immunol.*, 23 : 1131, 1979.