The Effect of Immunization on HBV Associated Nephropathies in Korean Children

Department of Pediatrics, College of Medicine, Kyung Hee Universityl, Seoul, Korea,
East West Kidney Disease Research Institute, College of Medicine,
Kyung Hee University, Seoul, Korea

Hye-Jeon Chung · Sung-Do Kim* · Byoung-Soo Cho*

Objectives : In Korea, hepatitis B virus (HBV) vaccine was implemented since 1983 and had an effect on a decline in the incidence of HBV carriage. It is thought to cause a decrease of the related hepatic diseases in HBV-endemic area. We evaluate the changes in characteristics of membranous nephropathy (MN) and membranoproliferative glomerulonephritis (MPGN) in children as decreasing HBV carrier rate over 14years.

Methods : Forty-two cases of MN or MPGN diagnosed by renal biopsy from Jan. 1985 to Jan. 2004 were reviewed retrospectively to elucidate the cause, clinical features, and pathology of MN and MPGN in children. Hepatitis B virus status was determined using a radioimmunoassay. Twenty were diagnosed as MN and 22 as MPGN between Jan. 1985 and Jan. 2004.

Results : Among them, five (25%) of MN and one (4.5%) of MPGN were HBsAg-positive. Interestingly, all of them had HBsAg-positive family members. Three of 5 HBV-MN and 1 HBV-MPGN were HBeAg-positive. The vertical transmission of HBV infection from their mother or horizontal transmission between close family members was the major cause of their chronic HBV carriage and resultant HBV-associated glomerulonephritis (HBV-GN). Three of HBV-MN had been treated with intravenous interferon alpha; one of HBV-MN and 1 HBV-MPGN received corticosteroids therapy; one of HBV-MN received both. One of HBV-MN children with both treatment and 1 HBV-MN with steroid treatment experienced remission state without proteinuria and hematuria; in one of HBV-MN, proteinuria decreased but microscopic hematuria remained during the follow-up periods.

Conclusion : The chronic carrier rate of school-aged children decreased from 4.8% prior to HBV vaccination to 0.9-2.6% after over-ten-year HBV vaccination in Korea. Therefore, additional attention should be paid to interruption of perinatal transmission and serological follow-up in high-risk newborns after vaccination to further lower the incidence of HBV-GN. However, there are still many unknown causes of non HBV-associated MN and MPGN. Further studies about the causes and treatments of noninfectious GN should be carried out in the future.