Hypermethylation of SFRP2 gene in fecal and serum DNA; potential markers for colorectal cancer and precancerous lesion?

Department of Internal Medicine¹, Surgery², and Pathology³, Kangbuk Samsung Hospital, Sungkyunkwan University School of Medicine, Seoul, Korea Department of Medicine, Samsung Medical Center, Sungkyunkwan University School of Medicine, Seoul, Korea

*Hye Jin Kim, M.D.¹, Dong Il Park M.D.¹, Young Jin Kim¹, Bo-Kyoung Kim¹, Jung Ho Park, M.D.¹, Hong Joo Kim, M.D.¹, Yong Kyun Cho, M.D.¹, Chong Il Sohn, M.D.¹, Woo Kyu Jeon, M.D.¹, Byung Ik Kim, M.D.¹, Hung Dai Kim

Purpose: This study was designed to detect hypermethylated secreted frizzled-related protein 2 (SFRP2) gene in fecal and serum DNA of healthy control and patients with colorectal cancers (CRC) and colorectal adenomas and to explore the possibility of using this assay as a screening tool. Methods: Stool and serum samples were obtained from 32 endoscopically diagnosed healthy controls, 47 patients with adenomas (including 19 patients with advanced adenoma) and 54 patients with CRC. Methylation-specific PCR was used to detect the methylation status of the SFRP2 in the bisulfite-modified DNA. Results: SFRP2 gene in stool samples was hypermethylated in 79.6% of CRC (43/54), 72.3% of colorectal adenoma (34/47) and 9.36% of healthy control (3/32). In case of advanced adenoma hypermethylated SFRP2 gene was detected in 14 of 19 (73.7%). In contrast, hypermethylated SFRP2 gene in serum was detected in 100% of CRC, adenoma and healthy control. Conclusion: Our results have demonstrated that hypermethylation of SFRP2 gene in stool samples is a feasible epigenetic marker for CRC and precancerous lesions screening. Unlike in stool samples, detection of hypermethylation of SFRP2 gene in serum does not offer a potential mean for CRC screening.

A Fanconi’s syndrome induced by adefovir dipivoxil in chronic hepatitis B patient

Department of Internal Medicine, Guro hospital, Korea University Medical College, Seoul, Korea

*Young Sun Lee, Hyun Jung Lee, Eileen L. Yoon, Jong Hwan Choi, Chung Ho Kim, Young Kul Jung, Ji Hoon Kim, Jong Eun Yieon, Kwan Soo Byun

Introduction: Adefovir is primarily excreted through the kidney via glomerular filtration and active tubular secretion. Thus, nephrotoxicity may occur by tubular damage or by tubular deposition. Nephrotoxicity, characterized by gradual increase in serum creatinine and decrease in serum phosphorus, is dose dependent and several cases of Fanconi’s syndrome are reported in HIV patients taking high dose adefovir(60-120mg/day). However, there has not been reported that Fanconi’s syndrome was induced by 10mg adefovir in chronic hepatitis B(CHB) patients without HIV infection. We report one case of Fanconi’s syndrome in CHB patient treated with Adefovir dipivoxil daily 10mg. Case: A 47-year-old man taking Adefovir for 38 months visited hospital for evaluation of multiple joint pain. Laboratory data revealed elevated serum creatinine, low potassium, and low phosphate. HbA1c and serum glucose were normal. Urine analysis showed glucosuria and proteinuria. Radiologic tests showed lumbar spine spondylosis and multiple rib fractures. Secondary Fanconi’s syndrome was suspected and additional tests were performed to confirm diagnosis. Blood gas analysis revealed hyperchloremic non-anion gap metabolic acidosis. Serum PTH, 25Vit D, 1, 25(OH)2 vit D, and osteocalcin were normal. 24 hour urinary study showed decreased phosphate and calcium excretion. Serum PEP and IFE showed no abnormal bands. Urine PEP showed diffuse staining patterns. Bone scan revealed focal and multiple hot uptake. Except other causes of acquired Fanconi’s syndrome, it was thought to be caused by interstitial nephritis secondary to adefovir. After discontinuation of adefovir and supply of phosphate, serum creatinine and electrolytes were normalized. Discussion: It is well known that risk of nephrotoxicity in adefovir 10 mg/day for compensated CHB patients with adequate renal function is very low. However, as this case, conventional dose of adefovir could cause Fanconi’s syndrome in CHB patients without HIV infection. Hence, it should be noted that all clinicians carefully monitor nephrotoxicity during adefovir therapy in CHB patient’s even with adequate renal function and without HIV infection.