KSN 2019
Seoul, Korea · May 23 - 26

Abstract Submission No. : IL-9080

Cancer screening in Korean patients with end-stage renal disease

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Cancer accounts for cardiovascular disease and infection among the causes of death in dialysis patients. In many recent reports, it has been reported that the occurrence of cancer is higher than that in the general population; however, the exact prevalence and incidence have also not been established criteria for a cancer screening test. To establish a screening test in Korean dialysis patients, first, are there any more cancer outbreaks in Korean dialysis patients? Second, is the screening tool accurate and appropriate in dialysis patients? Finally, when diagnosed through screening, can it lead to an extension of the survival time of Korean dialysis patients?
In dialysis patients, the incidence of cancer varies by ethnicity, but it appears to be increased in comparison with the general population. Regardless of the regional difference, the incidence of renal cell carcinoma (RCC) [standardized incidence ratio (SIR) 3.6–24.1] and bladder and urinary tract cancers [SIR 1.5–16.4] is thought to be higher than in the general population. Acquired cystic disease in RCC, analgesic abuse, Balkan nephropathy, and oral cyclophosphamide in urinary tract cancer are well-known risk factors. Cancer-associated with a certain virus increases in dialysis patients compared with the general population. HBV and HCV-related hepatocellular carcinoma show 1.4 to 4.5 times the SIR. Cervical cancer and tongue cancer associated with human papillomavirus (HPV) also increase.
In studies including ESRD patients from the United States, Europe, Australia, and New Zealand, bladder cancer was 1.5 times higher (SIR 1.5) and RCC was 3.6 (SIR 3.6) times higher than in the general population. In a Korean retrospective study for the analysis of the incidence of malignant tumors in about 4,562 people, there were urologic malignant tumors in 21 patients and 12 cases had RCC. Additionally, in a prospective cohort study for the analysis of 5,235 ESRD patients, the incidence of kidney cancer was certainly increased [SIR 4.69, 2.42–8.19]. RCC occurrence in dialysis patients is associated with acquired renal cysts, and there are more severe renal insufficiency and dialysis vintage. The longer dialysis vintage has a high incidence frequency of cancer. The acquired cysts were present in 7–22% of patients with chronic kidney disease with a serum creatinine level of >3 mg/dL, in 44% with less than 3 years, 75% with more than 3 years, and 92% with more than 8 years. Because the cyst progresses slowly, most cases are not symptomatic, but hematuria, fever, pain, or a palpable mass when the hemoglobin level rises more than expected during dialysis should be suspected when cysts occur. Therefore, the early detection of acquired renal cysts in patients undergoing dialysis may have sufficient significance for screening.
It is unclear whether the incidence of gastric cancer and colorectal cancer is higher than that in the general population. Patients with dialysis had a high rate of gastrointestinal bleeding, heparin use, and platelet function disorder, which often lead to a positive stool occult blood test. Therefore, colonoscopy is often performed early, and in this case, colon cancer can be diagnosed earlier. To date, the benefits of screening for colorectal cancer have not been established in dialysis patients, and several recent studies have attempted this (DETECT study, ANZ data registry clinical trial). Unlike the Western countries in previous reports, which did not show a higher SIR than the general population, the incidence of gastrointestinal cancer was the most common in Korean ESRD patients, which was similar to a previous report from Japan. In addition to the epidemiological view that Korea and Japan have the highest incidence of gastric cancer in the world, gastric cancer's specific risk factors that affect the rate also suggest the possibility exists in Korean ESRD patients. In Korea, the National Cancer Center recommends gastric cancer screening every two years from the age of 40 years or older. However, the American Society for Disease Prevention and the Canadian Disease Prevention Committee do not review or recommend gastric cancer screening. In the 2008 Japanese

guidelines for gastric cancer, screening is recommended every year from the age of 40 years or older. As such, the criterion for gastric cancer screening is very high prevalence, which is recommended in Japan. The criteria in Korea are much more severe; Korean ESRD patients also need to have individualized treatment rather than comply with the same standards as Western countries.

Further discussion is needed about screening for colorectal cancer. The recommendations of the American Society of Gastrointestinal Cancer Screening recommend that in the high-risk patient group, if there is a history or family history, screening is recommended by colonoscopy. The colonoscopy of patients with ESRD should be carefully considered because the risk of procedure-related complications, such as the risks of the procedure itself and intestinal cleansing, is higher in patients with ESRD than in the general population. In dialysis patients, hypoglycemia associated with intestinal cleansing may be associated with hypotension, which may accelerate thrombus formation in the arteriovenous fistula, which can be exacerbated by hypovolemia through bowel preparation. On the other hand, an excessive amount of cleansing fluid for colonoscopy may cause fluid overload in an anuric state. Therefore, dialysis timing should be decided according to the patient's condition and situation. In addition, residual renal function in peritoneal dialysis patients is very important to patients, and if there is a residual renal function, it is very important to avoid hypovolemia related to bowel preparation to minimize the impact on them. Considering the risk of colonoscopy and the benefits of screening tests, screening tests and methods should be established, which warrants further study.