Screening for gastroenterological malignancies in new and maintenance dialysis patients

TAKAFUMI ITO1,3, ISSEI TANAKA1, TAKAYUKI KADOYA1, MARI KIMURA1, TAKAFUMI OOSHIRO1, KOICHI OOISHI1, JUNKO TANAKA2, and NORIAKI YORIOKA3

1 Hiroshima Prefectural Hiroshima Hospital, Artificial Kidney Center, Hiroshima, Japan
2 Department of Hygiene, Hiroshima University School of Medicine, Hiroshima, Japan
3 Second Department of Internal Medicine, Hiroshima University School of Medicine, 1-2-3 Kasumi, Minami-ku, Hiroshima 734-8551, Japan

Abstract: To screen for gastroenterological malignancies in dialysis patients, we used the fecal occult blood test, examined the upper and lower gastrointestinal tract, and used abdominal ultrasonography in 178 patients starting dialysis (171 on hemodialysis and 7 on continuous ambulatory peritoneal dialysis (CAPD)) and 34 patients on maintenance dialysis (27 on hemodialysis and 7 on CAPD). Screening disclosed ten cancers (one esophageal cancer, three gastric cancers, four colorectal cancers, and two hepatocellular carcinomas) in 9 of the patients starting dialysis. Six cancers (one esophageal, three gastric, one colorectal, and one renal) were detected in 5 of the patients on maintenance dialysis. Since an increased incidence of malignancy has been reported in dialysis patients, gastroenterological screening appears to be worthwhile.

Key words: chronic renal failure, gastroenterological screening, malignancy

Introduction

Since Matas et al. reported in 1975 that uremic patients seem to develop malignancies more often than the general population, a number of authors have presented similar findings.2–8

Since 1989, we have periodically performed imaging and fecal occult blood studies in patients with chronic renal failure to screen for gastroenterological malignancies at the time dialysis is initiated and during maintenance dialysis. The present study was done to assess the value of such screening examinations.

Subjects and methods

The subjects consisted of 178 patients starting dialysis (hemodialysis in 171 and continuous ambulatory peritoneal dialysis (CAPD) in 7) and 34 patients on maintenance dialysis (hemodialysis in 27 and CAPD in 7) who were treated at the Artificial Kidney Center of Hiroshima Prefectural Hiroshima Hospital during the 6 years from January 1989 to December 1994. The mean age of the patients starting dialysis was 60.8 ± 13.3 years, while that of the maintenance dialysis patients was 57.0 ± 13.1 years, with the mean duration of dialysis being 35.1 ± 17.7 months. The primary diseases in the patients starting dialysis were chronic glomerulonephritis in 81, diabetic nephropathy in 68, nephrosclerosis in 15, polycystic kidney in 6, rheumatoid arthritis in 3, and others in 5. In the maintenance dialysis patients, the primary disease was chronic glomerulonephritis in 20, diabetic nephropathy in 11, nephrosclerosis in 2, and polycystic kidney in 1. The patients in the new and maintenance dialysis groups overlapped substantially (34 patients). Patients in the maintenance dialysis group were defined as those who had been receiving dialysis at Hiroshima Prefectural Hiroshima Hospital since the introduction of the screening system in 1989.

The patients starting dialysis underwent fecal occult blood testing (human hemoglobin immuno-detection method; Dainascreen Hemo [Dainabot, Tokyo, Japan]) on two occasions, examination of the upper gastrointestinal tract (gastroscopy or gastric radiography, as decided by the patients themselves) and the lower gastrointestinal tract (colonoscopy or barium enema, as decided by the patients themselves), and abdominal
ultrasonography. Maintenance dialysis patients underwent fecal occult blood testing at 3-month intervals. Patients who had positive test results, as well as those who had gastroenterological symptoms, underwent endoscopic or radiographic studies. Abdominal ultrasonography was performed at 6-month intervals.

The prevalence of each malignancy was calculated at the time dialysis was initiated, with the 1990 nationwide survey data of the Japanese Society of Gastrointestinal Screening used as the control. The incidence of each malignancy was also determined during maintenance dialysis, using the “Cancer Mortality and Morbidity Statistics” of the Japanese Cancer Association as the control. Statistical analysis of data was performed with the χ² test for goodness of fit.

## Results

### New dialysis patients

**Upper gastrointestinal tract** (Table 1). When dialysis was initiated, examination of the upper gastrointestinal tract was performed in 162 of the 178 patients, and 152 abnormalities were found. Esophagitis, gastritis, and duodenitis were the most common lesions (87 cases together). There were 7 ulcers and 25 polyps, one of which was diagnosed as group III on biopsy. Ten tumors were also detected, including one esophageal cancer, three gastric cancers, and six submucosal tumors of the stomach. The prevalence of gastric cancer in the group was particularly high, at 3/162 (1.85%), and statistical analysis showed that it was significantly more prevalent in the dialysis patients than in the control population (0.26%) (P < 0.01).

A positive fecal occult blood test was associated with 48 of the 152 abnormal findings. Positive tests were associated with five of seven ulcers and four of ten tumors.

**Lower gastrointestinal tract** (Table 2). Examination of the lower gastrointestinal tract was carried out in 84 patients, and 64 abnormalities were detected. There were 51 colonic polyps, one of which was diagnosed as a carcinoma in adenoma after polypectomy. Larger tumors were also detected, including three colorectal cancers and one small-bowel adenoma. The prevalence of colorectal cancer was very high, at 4/84 (4.76%) and statistical analysis revealed that it also was significantly more prevalent in the dialysis patients than in the control population (0.29%) (P = 0.01).

A positive fecal occult blood test was associated with 37 of the 64 abnormal findings. It was positive in 30 of the 51 colonic polyps and 4 of the 5 tumors (including the carcinoma in adenoma).

**Abdominal ultrasonography** (Table 3). Abdominal ultrasonography was done in 131 patients, and 76 abnormal findings were observed, including 9 cases of liver cirrhosis, 2 cases of hepatocellular carcinoma, 18 cases of cholelithiasis, 6 cases of polycystic kidney, and 9 cases of acquired cystic kidney disease.

**Patients with gastroenterological cancer** (Table 4). Ten cancers were detected in 9 of the 178 patients starting dialysis, including one esophageal cancer, three gastric cancers, four colorectal cancers, and two hepatocellular carcinomas. Five of the 9 patients underwent surgery and 4 have survived. One of the four colorectal cancers was a carcinoma in adenoma, which was completely removed by endoscopic polypectomy. There has been no recurrence of this tumor. The two patients with...