Gastrointestinal Pathologies in Patients After Successful Renal Transplantation—A Pilot Study

A. Dobies[a], M. Renke[a,*], W. Wołyniec[a], L. Palenicek[a], J. Januszczyk[a], E. Król[b], S. Lizakowski[b], P. Rutkowski[b], L. Tylicki[b], A. Dębska-Ślizień[b], and B. Rutkowski[b]

[a]Department of Occupational, Metabolic, and Internal Medicine, Medical University of Gdańsk, Gdańsk, Poland; and [b]Department of Nephrology, Transplantology, and Internal Medicine, Medical University of Gdańsk, Gdańsk, Poland

ABSTRACT

Background. The beneficial effect of kidney transplantation in patients requiring continuous renal replacement therapy owing to chronic kidney disease is well known and accepted. Kidney transplantation protects the patient from complications that may develop during chronic dialysis. Unfortunately, there is also evidence that kidney transplant patients are more prone to developing cancer than healthy persons. The aim of this study was to evaluate the prevalence of gastrointestinal pathologies in patients after kidney transplantation.

Methods. Adult patients after kidney transplantation, who are under the care of the Outpatient Department of Nephrology in Gdańsk, received alarm symptom questionnaires and referral for testing for the presence of fecal occult blood. Then, in 45 selected patients (29 men and 16 women) endoscopic examination was performed. Mean age was 57.6 ± 10.1 (range, 35–83) years.

Results. Out of ~940 patients after kidney transplantation, resting under supervision of outpatient department, 181 patients completed the questionnaire and 100 gave a stool sample for testing: 32 results were positive. After analyzing the questionnaires and stool results, 88 patients were qualified for further investigation. The endoscopic examination had been performed so far in 45 patients and revealed gastritis and/or duodenitis in 33 patients, diverticular colon disease in 18, esophagitis in 8, colon polyps in 14, stomach polyps in 3, inflammatory bowel disease in 7, and cancers in 3.

Conclusions. The preliminary results indicate that patients after kidney transplantation have significant risk of gastrointestinal pathologies and require detailed diagnostic endoscopy.

THE BENEFICIAL effect of kidney transplantation (KT) in patients requiring continuous renal replacement therapy owing to chronic kidney disease is a widely accepted fact. KT protects the patient from many complications that could develop during chronic dialysis. As surgical techniques, immunosuppression therapies, and monitoring after KT have improved, KT patients survive longer and have better treatment success rates [1,2]. However, the development of new neoplasms after KT is a serious problem that affects morbidity and mortality. Malignancy has become the 3rd most common cause of death after cardiovascular events and infection among KT recipients. Among the most common are skin cancers other than melanoma. Also, the risk of solid tumors is 2–4 times greater than in the general population [3]. Mentioned here are cancers of nasopharynx, gastrointestinal tract, and urinary tract. The gastrointestinal tract is mostly affected by colon cancer. It is the term used in case of cancer that develops in the colon or rectum. Most colorectal cancers

Funding: Polish Committee for Scientific Research via the Medical University of Gdańsk (ST-106).

*Address correspondence to Marcin Renke, MD, PhD, Department of Occupational, Metabolic, and Internal Medicine, Medical University of Gdańsk, 81-519 Gdynia, Powstania Styczniowego Street 9b, Gdańsk, Poland. E-mail: mrenke@gumed.edu.pl

0041-1345/16
http://dx.doi.org/10.1016/j.transproceed.2016.02.060

develop slowly over many years, giving the potential opportunity for early detection and effective treatment. The process progresses via the adenoma-carcinoma sequence. Progressive acquisition of the mutations that cause colorectal adenomas to become high-grade dysplasias or invasive cancers can take 5–10 years [4,5].

Owing to the well described natural history of adenomatous polyps, it appears necessary to evaluate the prevalence of polyps before KT to better adjust polyp surveillance after transplantation. Several variables may influence the incidence of colorectal lesions in KT candidates, especially etiology of primary kidney disease [6,7], diabetes [8], obesity [9], immunosuppressive drugs [10], and length of dialysis [6,11].

Among the symptoms of colon cancer are change in bowel habits, diarrhea, constipation, macroscopic or latent intestinal bleeding, abdominal pain, weakness, fatigue, and weight loss. Colorectal carcinomas are the most common cancers. They are responsible for 8% of cancer deaths in the world, which makes them the 4th leading cause of cancer deaths annually, accounting for ~600,000 deaths, according to the National Cancer Registry of 2010. Colon tumors take 3rd place in men and 2nd among women in the statistics of morbidity, whereas in mortality the take 2nd place in men and 3rd in women. The risk factors for colorectal cancer in general population include nonmodifiable ones such as age, genetic predisposition (for ~5%–10% of cases), incidence of colorectal cancer in the family, diabetes type 2, presence of colorectal polyps, inflammatory bowel disease, including ulcerative colitis, and race/ethnicity (African Americans have the highest incidence) and modifiable factors: diet (red meat and animal fats), physical inactivity, obesity, smoking, and excessive alcohol consumption. In the registry, probable risk factors, such as shift work and treatment of some cancers in the past, are also specified. The aim of this prospective single-center study was to evaluate the prevalence of gastrointestinal pathologies in patients ≥1 year after KT.

METHODS

We performed a prospective pilot study in a cohort of adult patients after KT who are under the care of the Outpatient Department of Nephrology in Gdańsk. After giving their consent the patients received alarm symptom questionnaires and referral for testing for the presence of fecal occult blood (FOBT). Out of ~940 patients after KT under supervision of the outpatient department, 181 patients completed the questionnaire and 100 gave a stool sample for testing. The questionnaire was performed only in those ≥2 years after kidney transplantation. Excluded were patients with diagnosed neoplastic disease of gastrointestinal tract and those who had colonoscopic examination within the past 3 years. Patients filled in a detailed questionnaire including questions about past complications, infections after KT, immunosuppressive drugs received, and lifestyle. After analyzing the questionnaires and stool results, 88 patients with alarm symptoms present and/or positive FOBT, were qualified for further investigation. The data for this study was available for 45 patients (29 men and 16 women) with endoscopic examination performed. Mean age was 57.6 ± 10.1 (range, 35–83) years. Clinical characteristics of the patients are listed in Table 1.

Table 1. Baseline Characteristics of Patients Who Completed the Study

Parameter	Value
Sex, female/male	16/29
Age, y	57.6 ± 10.1
Time after KT, mo	96.3 ± 55
Time from diagnosis of CKD, y	20.6 ±11.2
Smokers	4 (8.9%)
Anemia (hemoglobin level, <12 g/dL)	7 (15.6%)
Cancer in the family	18 (40.0%)
Bowel disease before KT	4 (8.9%)
Disturbance in bowel habits	18 (40.0%)
Abdominal pains	17 (37.8%)
Weight loss	9 (20.0%)
Blood in the stool	7 (15.6%)
Fecal immunochemical test for human hemoglobin	22 (48.9%)

Note. Values are presented as or mean ± SD.
Abbreviations: KT, kidney transplantation; CKD, chronic kidney disease.

Participants received bowel preparation according to the endoscopist's preference, usually a polyethylene glycol–based preparation in combination with a sodium anhydrous sulfate–based preparation. Participants were admitted to the hospital, received intravenous hydration before colonoscopy, and had serum creatinine measurements to estimate renal function before and after colonoscopy. No adverse events were noted. During gastroscopy and colonoscopy, the location and size of all polypoid lesions were recorded, and the presence of any other lesions were noted. Biopsy forceps were used to estimate the size of each polyp. If the examination of the bowel was incomplete because of the poor bowel preparation, the patient was asked to return for a second attempt. We recorded fecal immunochemical test results as either positive or negative for the presence of human hemoglobin, as reported by the laboratory. Retrieved gastrointestinal biopsy samples were sent to local laboratories for histologic examination. Pathologists were not aware of the fecal hemoglobin result or that patients were enrolled in this study. The final diagnosis for each participant was determined on the basis of combined results of gastroscopy, colonoscopy, and histology of retrieved or resected specimens.

RESULTS

Out of ~940 adult patients after KT, under the supervision of the outpatient department, 181 completed the questionnaire and 100 gave a stool sample for testing: 32 results were positive. Symptoms of alarm were reported in 51 patients, and 23 reported a positive family history of cancer. After analyzing the questionnaires and stool results, 88 patients aged 36–83 years were qualified for further investigation. Of the 88 patients who entered the study, 45 (51.1%) completed the protocol. Twelve subjects dropped out because of the withdrawal of consent, and 31 were lost to established research. Table 2 presents the final diagnoses after endoscopy.

Safety of Colonoscopy and Adverse Events

No significant adverse events occurred as a result of endoscopic examination. One patient had minor bleeding in association with polypectomy, which was controlled