



Gastric Adenocarcinoma after Renal Transplantation

Dong Jin Choi, M.D., Woo Jin Hyung, M.D., Ki Hwan Kwon, M.D., Soon Il Kim, M.D., Yu Seun Kim, M.D., Sung Hoon Noh, M.D. and Ki Il Park, M.D.

Purpose: The incidence of malignancy in renal transplant recipients has been reported higher than in the general population. Despite gastric cancer being the most common malignancy in Korea, little is known about the incidence of gastric cancer after renal transplantation. This study was performed to find out the incidence and clinicopathological features of gastric cancer after renal transplantation in an endemic area for gastric adenocarcinoma.

Methods: Between April 1979 and March 2001, 11 gastric adenocarcinoma patients out of 2000 renal transplants at a single institute were reviewed retrospectively.

Results: In 5 male and 6 female patients with a mean age of 46.1 years (0.55% of kidney transplanted patients), stomach cancer occurred about 59 months after renal transplantation. Nine patients underwent a gastric resection with a curative intent while 2 with distant metastasis were treated symptomatically. None of the patients received any type of adjuvant therapy. There was no postoperative mortality although there were two postoperative complications, which were treated conservatively. Five patients survived without any evidence of recurrence, whereas 6 died due to recurrences or progression of gastric cancer. Three patients with early gastric cancers remain alive while all 4 stage IV patients died within 4 months of diagnosis.

Conclusion: Renal transplant recipients are at an increased risk of a gastric adenocarcinoma, the most common malignancy in Korea. With curative surgery, a favorable prognosis

can be anticipated in patients with early gastric cancer after renal transplantation unless there is their diagnosis. Every effort for the early diagnosis should not be overlooked during the follow-up period. However, considering the worse prognoses and the more aggressive behaviors of advanced gastric cancer in renal transplant recipients, the value of adjuvant chemotherapy should be evaluated in the near future. (J Korean Surg Soc 2003;64:201-205)

Key Words: Gastric adenocarcinoma, Renal transplantation, Immunosuppression

Department of Surgery, Yonsei University College of Medicine, Seoul, Korea

1968 Doak (1)
 가
 1.9% 15% .(2-4) Penn (5)
 3 5
 가 가 2
 가
 가

Table 1. Patients characteristics

No	Age/gender	Duration after Tx (months)	Immunosuppressive agent	Rejection before Dx
1	32/M	49	AZA+PRD	None
2	38/F	72	CsA+PRD	None
3	63/F	47	CsA+PRD	None
4	47/F	89	CsA+PRD	Once
5	43/M	88	CsA+PRD	Once
6	58/F	109	CsA+PRD	Once
7	42/F	7	CsA+PRD	None
8	59/M	28	CsA+PRD	None
9	36/M	47	CsA+PRD	None
10	57/M	62	CsA+PRD	None
11	32/F	47	AZA+CsA+PRD	Once

Tx = transplantation; Dx = diagnosis; AZA = azathioprine; PRD = prednisone; CsA = cyclosporine A.

1979 4 2001 3
2000
11
가
1980
, 1984 1990
가
WHO
TNM
11
2002 5 31

6 , 5
1 ,
9 ,
1 (Table 1).
4
Baseline Cr 3.1 mg%
1
9
가 1
가 2
7
2
D1
가
7 , 2 ,
2 ,
1 , 3 , 5
3 , 8
1 5 , 2 1 , 3 1 , 4 4 (Table 2).
2)
2

1)
2,000 1,370 , 630
36.4 (2~69)
1053 가
895 , 52 . 92
4.6%
11 0.55%
(
). 46.1 (
32~63) , 30 가 4 , 40 가 3 , 50 가 3 , 60
가 1 , 가 5 , 가 6
59 (7~109)

pig-tail catheter
2 2

REFERENCES

- 1) Doak PB, Montgomerie JZ, North JD, Smith F. Reticulum cell sarcoma after renal homotransplantation and azathioprine and prednisone therapy. *Br Med J* 1968;4:746-8.
- 2) Birkeland SA. Malignant tumors in renal transplant patients. The Scandia transplant material. *Cancer* 1983;51:1571-5.
- 3) Sheil AG, Mahony JF, Horvath JS, Johnson JR, Tiller DJ, Stewart JH, et al. Cancer following successful cadaveric donor renal transplantation. *Transplant Proc* 1981;13:733-5.
- 4) Kim HJ, Lee TW, Ihm CG, Kim MJ. Prevalence of cancers in Korean recipients of renal transplants. *Nephrology* 2002;7:198-204.
- 5) Penn I. Neoplasia following transplantation. In Norman DJ, Turka LA, editors. *Primer on transplantation*. 2nd ed. New Jersey: American Society of Transplantation; 2001. p.268-75.
- 6) Gaya SBM, Rees AJ, Lechler RI, Willians G, Mason PD. Malignant disease in patients with long-term renal transplants. *Transplantation* 1995;59:1705-9.
- 7) Penn I. Tumors after renal and cardiac transplantation. *Hematol Oncol Clin North Am* 1993;7:431-45.
- 8) Maisonneuve P, Agodoa L, Gellert R, Stewart JH, Buccianti G, Lowenfels AB, et al. Cancer in patients on dialysis for end-stage renal disease: an international collaborative study. *Lancet* 1999;354:93-9.
- 9) Jamil B, Nicholls K, Becker GJ, Walker RG. Impact of acute rejection therapy on infections and malignancies in renal transplant recipients. *Transplantation* 1999;68:1597-603.
- 10) Danpanich E, Kasiske BL. Risk factors for cancer in renal transplant recipients. *Transplantation* 1999;68:1859-64.
- 11) Arican A, Karakayali H, Coskun M, Colak T, Erdal R, Haberal M. Incidence and clinical characteristics of malignancies after renal transplantation: one center's experience. *Transplant Proc* 2001;33:2809-11.
- 12) Winkelhorst JT, Brokelman WJ, Tiggeler RG, Wobbes T. Incidence and clinical course of de-novo malignancies in renal allograft recipients. *Eur J Surg Oncol* 2001;27:409-13.
- 13) Kehinde EO, Petermann A, Morgan JD, Butt ZA, Donnelly PK, Veitch PS, et al. Triple therapy and incidence of de novo cancer in renal transplant recipients. *Br J Surg* 1994;81:985-6.
- 14) Vilardell J, Oppenheimer F, Castela AM, Puig JM, Cantarell MC, Sola R, et al. Cancer after transplantation in Catalonia. *Transplant Proc* 1992;24:124.
- 15) Ondrus D, Pribylincova V, Breza J, Bujdak P, Miklosi M, Reznicek J, et al. The incidence of tumours in renal transplant recipients with long-term immunosuppressive therapy. *Int Urol Nephrol* 1999;3:417-22.
- 16) Akiyama T, Imanishi M, Matsuda H, Nishioka T, Kunikata S, Kurita T. Difference among races in posttransplant malignancies: report from an oriental country. *Transplant Proc* 1998;30:2058-9.
- 17) Park JH, Park JH, Bok HJ, Kim BS, Yang CW, Kim YS, et al. Posttransplant malignancy during 30 years at a single center. *Transplant Proc* 2000;32:1979.
- 18) Noh SH, Yoo CH, Kim YI, Kim CB, Min JS, Lee KS. Results after a gastrectomy of 2,603 patients with gastric cancer: Analysis of survival rate and prognostic factor. *J Korean Surg Soc* 1998;55:206-3.
- 19) Barrett WL, Roy M, Aron BS, Penn I. Clinical course of malignancies in renal transplant recipients. *Cancer* 1993;72:2186-9.
- 20) Park CH. Proposal of a screening program for gastric cancer in Korea. *J Korean Med Assoc* 2002;45:964-971.
- 21) Penn I. Incidence and treatment of neoplasia after transplantation. *J Heart Lung Transplant* 1993;12:S328-36.
- 22) Gunji Y, Sakamoto K, Kamura K, Yamada K, Kashiwabara H, Shimada H, Hori S, Suzuki T, Ochiai T. Long-term outcomes of immunosuppressed renal transplant recipients with malignancies. *Surg Today* 2001;31:492-6.