Radical Esophagectomy on a Maintenance Hemodialysis Patient

M.	Makoto	Kitamura ^a
S.	Seigo	Hiraga ^a
T.	Tomi	Takamiya ^a
T.	Takashi	Iida ^a
M.	Miho	Hida ^a
T.	Takeshi	Sato ^a
S.	Shunsuke	Hara ^a
K.	Keizo	Hara ^b

^aDepartment of Transplantation I and Kidney Center, Tokai University School of Medicine, Isehara, and ^bSurgical Clinic, Seisho Hospital, Odawara, Kanagawa, Japan

Makoto Kitamura MD, Department of Transplantation I, Tokai University School of Medicine, Bohseidai, Isehara, Kanagawa, 259-11 (Japan)

Dear Sir,

Radical esophagectomy on a maintenance hemodialysis (HD) patient is reported. During the period of pre- and postoperation, serial HD was planned with frequent, short-time dialysis and low-dose heparinization. The cardiovascular load and the hemorrhagic tendency of the patient were well controlled, and the operation was carried out uneventfully.

Case Report

A 50-year-old female underwent chronic HD 3 times a week since 1986 because of the end-stage renal failure derived from chronic glomerulonephritis. On May 5th, 1987, sudden increase in the blood urea nitrogen and the serum potassium was found and it was suspected of being some bleeding from the gastrointestinal tract. Endoscopic examination revealed a 1 × 2 cm growth of mucosal protrusion in the lower portion of esophagus and the biopsy of this lesion revealed squamous cell carcinoma. The patient had not subjective complaints. The preoperative physical examination showed almost average findings for a chronic dialysis patient. On laboratory examinations, the hematocrit was 24.6%, hemoglobin 7.8 g/dl, serum creatinine 11.8 mg/dl, blood urea nitrogen 91 mg/dl, serum albumin 3.8 mg/dl, serum sodium 139 mEq/l and serum potassium 6.6 mEq/l.

A serial HD program was planned before and after the radical esophagectomy (table 1). Until 3 days before the operation, HD of 4 h with 600 units/h of heparin was undertaken. 2 and 1 days before the operation, HD of 4 h with the low-dose heparin was performed, and no HD on the operative day. From the 1st to the 3rd day after operation, HD of 3 h without any heparinization was undertaken. From the 4th to the 7th day after operation, HD of 3 h with the low dose of heparin and after the 8th day HD of 4 h with the standard heparinization was resumed 4 times a week.

Total esophagectomy with R2 resection was carried out. Gross findings of extirpated esophagus are shown in figure 1 and histological examination revealed squamous cell carcinoma of El, sm and

Fig. 1. Gross findings of extirpated esophagus. A superficial ulceration is noted.

Table 1. HD program in before and after operation

TINOMO. During the operation, gall bladder stones and bilateral ovarian cysts were found, and cholecystectomy and bilateral oophorectomy were performed at the same time. Total volume of bleeding during the operation was 380 ml and no blood transfusion with the infused fluid of 3,600 ml was administered. The postoperative course was uneventful, and the patient is maintained on HD without any complications.

104

Kitamura/Hiraga/Takamiya/Iida/Hida/Sato/Hara/Hara

Discussion

Recently, aggressive surgical operation for high-risk patients has generally been undertaken according to the development of surgical care. As to the frequency of esophageal carcinoma in HD patients. Ota et al. [1] reported 8 patients out of 354 (2.3%) with malignant tumors in 21,340 HD patients. Odaka [2] reported 15 patients with esophageal carcinoma out of 1,041 (1.4%) with malignant tumors of 80,553 HD patients. However, the clinical management of these patients with esophageal carcinoma on HD was not described in detail in the past literature. Our case is the first one of a successful radical esophagectomy in a HD patient.

In performing a serious surgical operation in HD patients, the control of the hemodynamics of the cardiovascular system and of hemorrhagic tendency is the most important factor to get successful results. In order to stabilize the hemodynamics of the cardiovascular system, mild and frequent or continuous slow hemofiltration [3], long-term HD with mild dialysance and frequent short-time HD are indicated for this purpose. Well-controlled uremic status is necessary to perform a serious operation and to prevent hemorrhagic tendency, and low doses of anticoagulants must be administered to conduct extra-corporeal circulation. From our experience, anticoagulant-free HD can be performed for about 3 h with a blood flow of 100 ml/min.

In the present case, peritoneal dialysis was not adopted because of the vast wound of radical esophagec-

tomy with the additional manipulation in the abdomen. Continuous hemofiltration or other types of long-time mild blood purification could be indicated to acquire stable hemodynamics of cardiovascular system; however, we selected frequent, short-time HD with low-dose heparinization through the entire course of operation, because long-time extracorporeal circulation requires large volumes of anticoagulants.

The experience of this case suggests that the serious surgical operation on HD patients can be safely carried out on well-planned dialysis programs.

References

Ota K, Yamashita N, Suzuki T, et al: Malignant tumors in dialysis patients – A nation wide survey. Proc EDTA 1981; 18:724–730.

Odaka M: Present status of chronic dialysis treatment in Japan. J Jpn Soc Dial Ther 1989;22:221–304.

Kramer P, Wigger W, Rieger J, et al: Arteriovenous hemofiltration: A new and simple method for treatment of overhydrated patients resistant to diuretics. *Klin Wochenschr* 1977; 55: 1121–1122.