Prognostic Significance of Tumor Extension Into Venous System in Patients Undergoing Surgical Treatment for Renal Cell Carcinoma with Venous Tumor Thrombus

Introduction and Objective: The incidence of involvement of the renal vein and/or inferior vena cava (IVC) has been reported to be between 4% and 15% in patients with renal cell carcinoma (RCC). The prognosis of patients with RCC involving the venous system is generally poor, and a reliable system for predicting the postoperative prognosis of these patients has not been developed. Considering these findings, we retrospectively reviewed data from patients with RCC involving the venous system who underwent radical nephrectomy and tumor thrombectomy in a single institution in Japan.
Materials and Methods: This study included a total of 135 patients (97 men and 38 women; median age, 59.5 years) with RCC (89 right- and 46 left-sided tumors) involving the venous system who underwent radical nephrectomy and tumor thrombectomy between 1989 and 2009 at a single institution in Japan. These patients were classified based on the maximal level of tumor thrombus extending into the venous system as follows: group 1, renal vein; group 2, infradiaphragmatic; and group 3, supradiaphragmatic.
Results: Of the 135 patients, 65 (48.1%), 49 (36.3%) and 21 (15.6%) were classified into groups 1, 2 and 3, respectively, while 53 (39.3%) and 29 (21.5%) presented distant and lymph node metastases, respectively. The 1, 3 and 5-year cancer-specific survival (CSS) rates were 85.5%, 67.2% and 61.7%, respectively. Among several factors examined, tumor size, tumor grade, perirenal fat invasion, presence of metastasis, but not extent of tumor thrombus, were significantly associated with CSS by univariate analysis. Of these significant factors, only tumor size and presence of metastasis appeared to be independently related to CSS by multivariate analysis. When the patients without metastasis were analyzed separately, CSS in groups 2 and 3 was significantly poorer than that in group 1.
Conclusions: These findings suggest the absence of a significant prognostic impact of the level of tumor thrombus in a whole cohort of RCC patients with venous tumor thrombus; however, it would be warranted to determine whether the level of tumor thrombus has a different effect on their prognosis according to the presence of metastatic diseases.