Bimodal Pattern of the Impact of Body Mass Index on Cancer-Specific Survival of Upper Urinary Tract Urothelial Carcinoma Patients: Multi-Center Study in a 1014-Case Tokyo Metropolitan Database of Urologic Disease (TMDU) Cohort

Introduction and Objective: The impact of obesity on the prognosis of upper urinary tract urothelial carcinoma (UUT-UC) has not yet been fully explored. We investigated the association between body mass index (BMI) and cancer-specific survival (CSS) of UUT-UC in 1014 Japanese patients.
Materials and Methods: Of 1329 patients with UUT-UC in the Tokyo Metropolitan Database of Urologic Disease (TMDU), 1114 without distant metastasis treated by nephroureterectomy were enrolled in this study. The association between BMI which was categorized into the following three groups: Group 1 (BMI 22.5 to <25), Group 2 (BMI 25 or greater), and Group 3 (BMI <22.5) and CSS was analyzed. We estimated the hazard ratios and 95% confidence intervals for Groups 2 and 3 after adjusting the established predictors.
Results: Median BMI was 22.5 (range: 13.5–40.6). The number of patients in Groups 1, 2, and 3 was 285 (28%), 234 (23%), and 495 (49%), respectively. The median follow-up period was 38 months (interquartile range: 16–73), and 213 patients (21%) died of disease. In the total cohort, the 5-year CSS rate was 74%. The 5-year CSS rates in Groups 1, 2, and 3 were 80, 72, and 71%, respectively. Both above and below the range of 22.5 to 25, BMI was an independent predictor of CSS in multivariate analysis with established prognostic factors.
Conclusion: This is the first study demonstrating that the impact of BMI on the prognosis of UUT-UC as a bimodal pattern.