

Risk Factors for Chronic Renal Impairment as Defined by eGFR after Chemotherapy for Testicular Cancer

Introduction and Objective: Chronic renal impairment is one of the most common late-complications in patients who have undergone chemotherapy for testicular cancer. We retrospectively examined the renal function of metastatic testicular cancer survivors using the estimated glomerular filtration rate (eGFR) to determine the clinical predictors of chronic renal impairment after chemotherapy.

Materials and Methods: Between January 1981 and December 2010, 106 patients were treated with cisplatin- based chemotherapy for metastatic testicular cancer at Tsukuba University Hospital. Ninety-six of 106 patients were followed for more than one year and were included. The estimated eGFR was based on the serum creatinine concentration using the formula of the Japanese Society of Nephrology. We evaluated several clinical variables as predictors of chronic renal impairment.

Results: The median follow-up was 70 months (range 15-342). The median eGFR before chemotherapy was 98 mL/min/1.73 m² (range 44-216), and it had decreased to 87 mL/min/1.73 m² (range 19-96) at the completion of chemotherapy. It further decreased for one year, with a median eGFR of 76 mL/min/1.73 m². However, there was no significant change in eGFR beyond one year. Therefore, clinical variables were tested as possible predictors of chronic renal impairment with a cut-off eGFR of 60 mL/min/1.73 m² at one year. The variables examined included pre-treatment blood pressure, smoking history, number of chemotherapy cycles, and nephrotoxicity during chemotherapy. Seventeen of 96 patients (18%) showed chronic renal impairment. The univariate analysis showed that the presence of hypertension, pre-treatment baseline renal function and nephrotoxicity during chemotherapy were possible predictors of chronic renal impairment after chemotherapy.

Conclusions: We recommend close monitoring of renal function for at least one year after chemotherapy for testicular cancer in patients having hypertension, pre-treatment renal impairment, and nephrotoxicity during chemotherapy.