Difference in Adverse Events of mTOR Inhibitors, Everolimus and Temsirolimus, in Metastatic Renal Cell Carcinoma Patients

Introduction and Objective: Everolimus and temsirolimus have proven their efficacy and are used for patients with metastatic renal cell carcinoma (mRCC). They both are rapamycin derivatives and are categorized as mTOR inhibitors. There have been few reports that examined the difference between these two agents regarding adverse events. Our objective was to investigate the difference in the safety of both agents on the basis of our clinical experience.
Materials and Methods: We identified patients with mRCC who had been treated with everolimus or temsirolimus at our hospital. Treatment duration, relative dose intensity, laboratory data, and adverse events during treatment with each agent were evaluated.
Results: A total of 53 patients were evaluable, of which. 37 had been treated with everolimus and 16 with temsirolimus. Eight patients had received both of the agents. There was no significant difference in age and gender between the two treatment groups. Median treatment durations of the everolimus and temsirolimus groups were 8.7 months and 4.7 months, respectively. Relative dose intensities of the everolimus and temsirolimus groups were 74.7% and 77.6%, respectively. Anemia, hypertriglyceridemia, hypercholesterolemia, hyperglycemia, and leucopenia were detected with higher frequency in the everolimus group. Anorexia of grade 3 was only counted in the temsirolimus group. 14% of patients in the everolimus group developed any grade of the interstitial lung disease (ILD) including 6% of grade 3, whereas ILD was reported in 6% of patients treated with temsirolimus with no grade 3 or higher. Frequencies of adverse events of grade 3 or higher were 35% in the everolimus group and 19% in the temsirolimus group.
Conclusions: Adverse-event profiles of everolimus and temsirolimus may differ from each other. Respiratory disorders may occur more frequently in patients treated with everolimus than temsirolimus. These findings suggest the difference in the route of administration of two agents may result in different adverse events even though they target the same molecule.