A novel model to predict cancer-specific survival in patients with early-stage uterine papillary serous carcinoma (UPSC)

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Objective: Stage I-II uterine papillary serous carcinoma (UPSC) has aggressively biological behaviors and leads to poor prognosis. However, clinicopathologic risk factors to predict survival of patients with early-stage UPSC are still unclear. This study was undertaken to develop a prediction model of survival in patients with early-stage UPSC.

Methods: Using SEER database, we identified 964 patients with stage I-II UPSC patients who underwent at least hysterectomy between 2004-2015. By considering of competing risk events for survival outcomes, we used proportional subdistribution hazards regression to compare cancer-specific death (CSD) for all patients. Based on the results of univariate and multivariate analysis, the variables were selected to construct a predictive model; and the prediction results of the model were visualized by nomogram to predict the cancer-specific survival and the response of adjuvant chemotherapy and radiotherapy.

Results: The median age of the cohort is 67 years old. 17.1% (n=165) of the patients died of UPSC (CSD), while 8.6% of the patients died from other causes (non-CSD). On multivariate analysis, age, tumor size and number of regional nodes removed were significantly associated with cumulative incidence of CSD. In the age ≥ 67 years cohort, stage I-II was a risk factor for CSD, and the number of lymph node resections greater than 10 was a protective factor. Both combination of adjuvant chemotherapy and radiotherapy and adjuvant chemotherapy alone could decrease CSD of patients with stage I-II UPSC older than 67 years. The prediction model had great risk stratification ability as high risk group had

higher cumulative incidence of CSD than low-risk group. In the high risk group, patients with postoperative adjuvant chemoradiotherapy had improved CSD compared with patients who did not receive radiotherapy nor chemotherapy.

Conclusion: Our prediction model had a good performance in predicting the cancer-specific survival of early-stage UPSC patients and contributed to guide clinical treatment decision.

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