A NEW PROGNOSTIC INDEX FOR OVERALL SURVIVAL IN MALIGNANT PLEURAL MESOTHELIOMA

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Aim: Existing prognostic indices for malignant pleural mesothelioma (MPM) do not incorporate recent advances in oncology care and were not based on real-world clinical data. This study aimed to provide a prognostic index for overall survival (OS) in MPM patients receiving chemotherapy with pemetrexed (CTx) or best supportive care (BSC) in a present, real-world setting.

Methods: A retrospective cohort study was performed using MPM patients treated in two tertiary hospitals in Japan between 2007 and 2013. The prognostic index was developed using CTx patients, then diagnostic performance of the index was evaluated in both CTx and BSC patients. The primary outcome was OS. The Cox proportional hazards model was used for multivariable analyses to detect prognostic factors. A final model was chosen based on both clinical and statistical significance. Harrell’s c index was calculated to examine the discrimination of the model. The bootstrapping technique was used for internal validation.

Results: Participants comprised 283 patients (CTx, n=228; BSC, n=55). On multivariate Cox proportional regression analysis, risk factors for poor prognosis of OS for CTx patients included performance status >0, non-epithelial histological type, and stage IV disease. Since hazard ratios of individual risk factors ranged from 1.81 to 2.07, a prognostic index for OS was constructed using a simple count of the number of risk factors (PHS index). Median OS in CTx patients was shortened by each 1-point increase in PHS index: 948 days (95% confidence interval (CI), 884–1012 days) for score 0; 544 days (95%CI, 526–561 days) for 1; 362 days (95%CI, 347–375 days) for 2; and 214 days (95%CI, 186–242 days) for 3. Internal validation showed the model was robust (c index, 0.670; 95%CI, 0.619–0.721). Median OS for each PHS index with BSC was: 573 days (95%CI, not evaluable (NE)–NE) for 0; 402 days (95%CI, 370–434 days) for 1; 94 days (95%CI, 82–105 days) for 2; and 34 days (95%CI, 15–52 days) for 3. Discrimination was consistent in BSC patients (c-index, 0.799; 95%CI, 0.725–0.874).

Conclusions: This index will provide clinicians and patients with a better framework for discussing prognosis at the time of diagnosis.

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