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ADV Score Is A Quantifiable Prognostic Prediction Model For Surgical Resection Of Hepatocellular Carcinoma: Korea-Japan Collaborative Validation Study With 9,200 Patients

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Lecture : This study was aimed to validate the prognostic predictive power of ADV score (alpha-fetoprotein [AFP]-des- γ -carboxyprothrombin [DCP]-tumor volume [TV] score, calculated as $\text{AFP [ng/mL]} \cdot \text{DCP [mAU/mL]} \cdot \text{TV [mL]}$ and expressed in \log_{10}) for predicting patient survival after resection of hepatocellular carcinoma (HCC). This study included 1920 patients who underwent hepatic resection for HCC enrolled from 10 Korean centers ($n = 4404$) and 73 Japanese centers ($n = 5156$). In comparison of patient and tumor profiles, Korean cohort showed higher age, lower DCP, smaller tumor diameter, lower ADV score, higher microvascular invasion, fewer satellite nodules. Multivariate analyses showed that ADV score at 5log, microvascular invasion and satellite nodule were independent risk factor for both tumor recurrence and patient survival. Tumor recurrence rates were closely correlated with ADV score in both Korean and Japanese cohorts. Overall and post-recurrence survival rates were also negatively correlated with ADV score in both Korean and Japanese cohorts. Reliable cutoffs of ADV score through K-adoptive partitioning method to achieve maximal log-rank test p-values appeared to be 4log for tumor recurrence and 8log for patient survival. Prediction of microvascular invasion showed area under the curve of 0.72 at ADV of 4.3log. In conclusion, ADV score is a simple intuitive surrogate biomarker of HCC biology reliably presenting tumor aggressiveness. This prognostic prediction model using ADV scores can provide quantitative post-resection prognosis including tumor recurrence, patient survival and post-recurrence patient survival. Because ADV score can be easily obtained through a simple calculation of the preoperative data, it can assist in the decision to perform surgical resection.