by open-label TAF through Year 8. Patients with hepatic decompensation, co-infection with HCV/HDV/HIV, or evidence of HCC were excluded. HCC was assessed at 6 monthly intervals by hepatic ultrasonography beginning after Week 96 and by local standards of care. The standardized incidence ratio (SIR) for HCC was calculated for observed cases relative to predicted cases using the REACH-B model.

**Results**

1632 patients were followed for up to 4 years; HCC was seen in 16 patients (0.98%;7 TAF; 9 TDF); median time to onset was 568 days. At baseline HCC patients were older (median age 53 vs 40 y; p<0.001), had lower median HBV DNA (6.2 vs 7.3 log10 IU/mL; p=0.041) and were more likely to have cirrhosis (FibroTest score 0.75; 31% vs 10%; p=0.004). For study patients, the overall SIR was significantly reduced with TAF or TDF treatment 0.45 (95% CI 0.278 -0.740) (table 1). HCC incidence was significantly reduced (SIR 0.42, 95% CI 0.23 to 0.75) in noncirrhotic patients (n=11 vs 26.5 predicted), but not for cirrhotic patients (n=5 vs 8.1 predicted). The SIR was significantly reduced in noncirrhotic patients receiving TAF (n=5), but not in those with TDF (n=6).

**Conclusions**

In CHB patients treated with TAF or TDF for up to 4 years, HCC incidence was reduced, particularly in noncirrhotic patients. Additional follow up is needed to further characterize the impact of longer-term treatment on HCC risk reduction.

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EXPLORATORY DATA ANALYSIS OF MIMIC-III DATABASE AND PREDICTING MORTALITY OF ACUTE HEPATIC FAILURE

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**Background**

Using MIMIC-III database to establish a machine learning method to predict the risk prediction model of mortality in patients with acute hepatic failure, assisting clinicians in clinical decision making.

**Methods**

We collected the demographics, physiological and biochemical parameters of the patients 24 hours before admission, and the variability and dynamic characteristics contained in the target patient as explanatory variables. In-hospital mortality was used as an outcome variable. Excellent machine learning algorithms such as random forest, xgboost, etc. were used to establish classification models to predict the severity of the acute hepatic failure.

**Results**

The proportion of diseases of different systems changing with age was obtained, and the characteristics of the disease spectrum in MIMIC-III database were explored and interpreted. In 1,037 patients with acute hepatic failure, the optimal AUC of prediction models established using random forest and xgboost machine learning algorithms reached 0.88 [0.86, 0.90], which outperformed traditional SOFA and SAPS clinical scores.

**Conclusions**

The performance of the model is better than the traditional clinically used scores. It can help clinicians to identify patients’ risk of deterioration and death early. Clinical decision-making provides supports and can be used as a reference for developing next-generation disease severity scores. The application of analytics based on big data in the medical field provides us with more reliable technical means for understanding the development process, early diagnosis, and clinical decision support.
safety of TACE combined with microwave ablation (MWA) versus TACE combined with cryoablation (CRA) in treating unresectable HCC.

Methods From January 2011 to December 2018, 108 patients diagnosed with unresectable HCC were divided into either the TACE-MWA group (n = 48) or TACE-CRA group (n = 60). Overall survival (OS) and time to progression (TTP) were compared between the two groups. Complications were observed. Kaplan-Meier survival curves were constructed and compared using the log-rank test.

Results Baseline characteristics of the two groups were basically balanced. The median OS was 20.9 months (95% CI 14.3–27.6 months) in the TACE-MWA group and 13.0 months (95% CI 8.8–17.1 months) in the TACE-CRA group (P=0.096). The median TTP was 8.8 months (95% CI 4.3–13.4 months) in the TACE-MWA group and 9.3 months (95% CI 7.1–11.5 months) in the TACE-CRA group (P=0.675) (figure 1). The overall incidence rate of ablation-related complications was lower in the TACE-MWA group than in the TACE-CRA group (66.7% vs. 88.3%, P=0.06). Multivariate analysis showed that the presence of portal vein tumor thrombus (PVTT) and the maximum diameter of the intrahepatic tumor were significant prognostic factors for OS and TTP.

Conclusions The efficacy of TACE-MWA and TACE-CRA in the treatment of unresectable HCC was comparable. TACE-MWA was more promising because of a lower complication rate, especially with regard to thrombocytopenia. Further prospective randomized controlled trials are required to validate our findings.