

Novel shapelet patterns for time series classification (TSC) of AFP and ALT to predict HCC in patients with chronic hepatitis B on antiviral treatment

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Introduction

- Though antiviral treatment with oral nucleos(t)ide analogues (NAs) effectively inhibits the replication of HBV, the risk of HCC is not completely abolished. Therefore, using NA alone may not suffice to prevent Hepatocellular carcinoma (HCC) and hence other effective strategies of chemoprophylaxis for HCC is warranted.

Aim

- To investigate the impact of aspirin on reducing HCC risk in patients treated with first-line oral nucleos(t)ide analogues (NAs; entecavir and/or tenofovir disoproxil fumarate).
- To report the gastrointestinal safety of aspirin use

Methods

- This was a territory-wide retrospective observational cohort study.
- Subjects were classified into aspirin users for at least 90 days during NA treatment (i.e. aspirin group); or no aspirin or any other antiplatelet use during follow up period (i.e. no aspirin group).
- Incidence rates of HCC and gastrointestinal bleeding (GIB) in two groups with propensity score (PS) matching with 1:3 ratio.

Results

- 35,516 CHB patients were included; mean age was 51.6±12.7 years; 21865 (61.6%) patients were male and 2,429 (6.8%) patients had clinical evidence of cirrhosis.
- 1,571 HCC occurred in a 49.1±31.2 months of follow up.
- Two representative shapelets of AFP alone and AFP and ALT are discovered in this study.
- The accuracy of the shapelet patterns for TSC increased from 64.31% for AFP alone, to 84.31% for combining AFP and ALT.

Conclusion

◆ Novel shapelet patterns for TSC of serum AFP and ALT levels achieve higher accuracy than those of AFP alone to predict HCC in CHB patients.

Figure. The most heavy-weighted shapelet for A. patients who developed HCC and B. patient who did not developed HCC.

