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Letter to the Editor

The Power of GPR for Predicting Liver Fibrosis and Cirrhosis May Be Affected By Different Scoring Systems of Liver Fibrosis in Patients with Chronic Hepatitis B

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Article Information

Received date: Apr, 14, 2016
Accepted date: Apr, 15, 2016
Published date: Apr, 16, 2016

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Letter to the Editor

We read with interest the article by Maud Lemoine et al [1] recently published in Gut. They found that Gamma-Glutamyl Transpeptidase (GGT)-to-Platelet Ratio (GPR) may be acted as a simple, non-invasive and inexpensive alternative to liver biopsy and Fibro scan laboratory model in sub-Saharan Africa. The GPR was significantly better than Aspartate Transaminase-To-Platelet Ratio Index (APRI) [2] and Fib-4 (based on age, ALT, AST and platelet count) [3] in predicting liver extensive fibrosis (≥F2) and cirrhosis (≥F4) in patients with Chronic Hepatitis B (CHB) in the Gambia and Senegal, but not in France. So we hypothesized that the predictive efficiency of these 3 markers may be heterogeneous in different race.

Furthermore, the GPR, APRI and Fib-4 were initially created based on patients with different chronic viral infection (hepatitis B virus, hepatitis C virus and human immunodeficiency virus/hepatitis C virus coinfection, respectively), and the laboratory texts making up of these 3 models also could be affected by the etiology of liver disease. For example, the elevated GGT levels may represent liver fibrosis or cirrhosis in viral hepatitis, but not in autoimmune disease. Therefore, whether the different etiologies of liver diseases have an effect on the predictive efficiency of these 3 models remains unknown.

More importantly, there are several scoring systems (the Metavir score, the Ishak score, the Scheuer score, and the Batts and Ludwig score) to stage the degree of liver activity and fibrosis. The predictive model created using one scoring system whether or not can be used to predict liver fibrosis and cirrhosis staged by other scoring systems. Therefore, we wish to validate the power of GPR, APRI and Fib-4 for predicting liver fibrosis and cirrhosis (scored according to the Scheuer score) in patients with CHB in Chinese population.

We retrospectively analyzed 126 CHB patients who were biopsied at the first hospital of Quanzhou between January 2005 and December 2009. There were 91 males and 35 females with an average age of 27.33±7.88, ranging from 14 to 48 years old. The degree of liver necroinflammation and fibrosis were scored according to the Scheuer score. Our results showed that the GPR, APRI and Fib-4 were all significantly increased with the progress of liver fibrosis (Figure 1: A,B,C). In addition, the GPR, APRI and Fib-4 were also markedly higher in patients with moderate to severe fibrosis (≥S2, n=81) than those with no or mild fibrosis (<S2, n=45). These results demonstrated that GPR, APRI and Fib-4 were associated with liver fibrosis, which were similar to Maud Lemoine et al. However, the area under the receiver operating characteristic curve (AUROC) for predicting liver fibrosis were 0.732 (0.646-0.807) for GPR, 0.751 (0.666-0.824) for APRI and 0.685 (0.596-0.765) for Fib-4 (Figure 1D), indicating that GPR did not have the best AUROC value for predicting liver fibrosis, although there were no significant differences among the 3 indexes (GPR *vs* APRI: P=0.641; GPR *vs* Fib-4: P=0.348; APRI *vs* Fib-4: P=0.126). Furthermore, the lowest AUROC value was seen in GPR 0.708 (0.621-0.786) when compare with APRI (0.717[0.630-0.794], P=0.904) and Fib-4 (0.870[0.799-0.924], P=0.801) in predicting liver cirrhosis (S4, n=11, Figure 1D).

All in all, we found that the efficiency of GPR for predicting liver fibrosis and cirrhosis scored according to the Scheuer score were very close to or ever lower than APRI and Fib-4 in patients with CHB in Chinese population. The non-invasive predictive markers need to be created according to different races, etiology of liver disease and scoring systems of liver pathological.

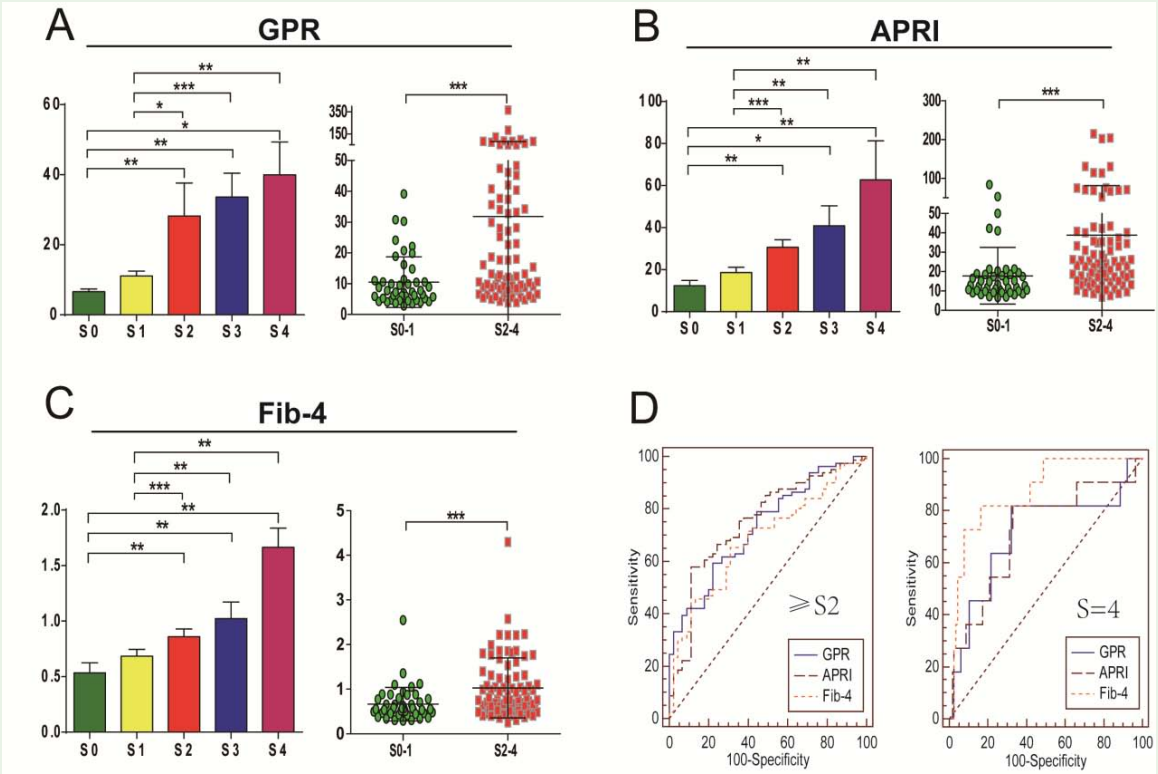

Figure 1: The non-invasive markers were associated with liver fibrosis (A) GPR; (B) APRI; (C) Fib-4. (D) ROC curve predict liver moderate to severe fibrosis (≥S2) and liver cirrhosis (S4). GPR, gamma-glutamyl transpeptidase (GGT) -to- platelet ratio; APRI, aspartate transaminase -to- platelet ratio index; Fib-4, based on age, ALT, AST and platelet count.
*P<0.05, **P<0.01, ***P<0.001.

Contributors

Y-XP performed statistical analysis and drafted the manuscript. Z-JM conceived the study and revised the manuscript.

Funding

This study was supported by National Natural Science Foundation of China (81400625, 81201277, 81471933, and 81101241), the Major Science and technology Special Project of China (2012ZX10002007-001-002, 2013ZX10002001); the "973" Project (2012CB519001), and the Natural Science Foundation of Fujian province (2015J01413).

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