**Supplementary Table 1 Characteristics of enrolled untreated patients with CHB.**

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| --- | --- | --- | --- | --- | --- |
| **Variable** | **Total**  **(n =471)** | **Deriving set**  **(n=258)** | **Validation cohort 1**  **(n=124)** | **Validation cohort 2**  **(n=89)** | ***P*** |
| **Age (years)** | 39.47±9.690 | 38.51±9.715 | 39.89±9.319 | 40.00±9.343 | 0.643 |
| **Sex (M/F)** | 289/182 | 167/91 | 74/50 | 48/41 | 0.692 |
| **BMI** | 22.49±3.332 | 22.40±2.939 | 22.29±3.996 | 23.00±3.379 | 0.262 |
| **Underlying diseases** |  |  |  |  |  |
| **Hypertension** | 10 (2.12%) | 4 (1.55%) | 3 (2.42%) | 3 (3.37%) | 0.570 |
| **Diabetes** | 6 (1.27%) | 1 (0.39) | 2 (1.61%) | 3 (3.37%) | 0.090 |
| **WBC (×109/L)** | 5.50 (4.60-6.40) | 5.35 (4.50-6.43) | 5.60 (4.60-6.58) | 5.60 (4.60-6.40) | 0.459 |
| **Neutrophils(×109/L)** | 3.10 (2.50-3.90) | 2.90 (2.50-3.80) | 3.20 (2.50-3.90) | 3.39 (2.69-4.01) | 0.083 |
| **Lymphocytes(×109/L)** | 1.60 (1.20-2.06) | 1.71 (1.40-2.20) | 1.76 (1.43-2.20) | 1.01 (0.81-1.12) | <0.001 |
| **N/L** | 1.97 (1.43-2.83) | 1.73 (1.29-2.45) | 1.84 (1.44-2.42） | 3.32 (2.84-4.04) | <0.001 |
| **RBCs (×1012/L)** | 4.79 (4.40-5.20) | 4.85±0.519 | 4.68±0.545 | 4.79 (4.35-5.28) | 0.035 |
| **Hemoglobin (g/L)** | 147.00 (134.00-158.00) | 150.00 (136.00-159.00) | 142.50 (131.00-153.75） | 145.00 (131.00-158.50) | 0.018 |
| **PLT(×109/L)** | 197.24±53.682 | 191.43±52.963 | 206.15±55.686 | 201.65±51.326 | 0.029 |
| **INR** | 1.01 (0.96-1.05) | 1.00 (0.95-1.05) | 1.00 (0.97-1.05) | 1.03 (0.99-1.08) | <0.001 |
| **Fib(g/L)** | 2.24 (1.91-2.58) | 2.14 (1.87-2.50) | 2.13 (1.84-2.51) | 2.43 (2.20-2.90) | <0.001 |
| **PT(s)** | 11.60 (11.10-12.20) | 11.50 (10.98-12.10) | 11.80 (11.30-12.40) | 11.70 (11.15-12.25) | <0.001 |
| **Albumin (g/L)** | 45.12±4.103 | 45.37±4.177 | 43.73±4.152 | 46.34±3.231 | <0.001 |
| **Globulin (g/L)** | 26.29±3.751 | 26.590±3.856 | 25.65±3.450 | 26.32±3.773 | 0.071 |
| **A/G** | 1.75±0.285 | 1.74±0.294 | 1.71±0.251 | 1.80±0.297 | 0.190 |
| **ALT (U/L)** | 32.00 (20.00-54.00) | 36.00 (22.00-62.25) | 29.00 (18.25-46.00) | 30.00 (18.00-44.00) | 0.002 |
| **AST(U/L)** | 26.00 (20.00-39.00) | 29.00 (22.00-43.00) | 23.00 (18.00-33.75) | 24.00 (19.00-31.50) | <0.001 |
| **ALP (U/L)** | 64.00 (53.00-79.00) | 69.00 (56.00-84.00) | 63.00 (53.25-74.75) | 58.00 (48.00-70.50) | <0.001 |
| **ChE (U/L)** | 8055.00 (6990.00-9587.00) | 7937.00 (6707.00-9175.00) | 7966.50 (7118.25-9801.00） | 8909.00 (7244.50-9876.50) | 0.029 |
| **TB (U/L)** | 11.00 (8.80-16.00) | 11.00 (9.00-16.00) | 11.00 (8.40-14.73) | 11.00 (8.5-16.50) | 0.590 |
| **DB (U/L)** | 4.00 (3.00-5.00) | 4.00 (3.00-5.00) | 4.00 (3.00-6.00)- | 3.00 (2.00-4.00) | <0.001 |
| **γ-GT(U/L)** | 20.00 (14.00-32.00) | 22.00 (15.00-33.25) | 18.50 (12.13-33.50) | 19.00 (12.00-29.00) | 0.050 |
| **TG (mmo/L)** | 0.99 (0.75-1.40) | 0.94 (0.71-1.33) | 1.02 (0.75-1.46) | 1.09 (0.79-1.55) | 0.040 |
| **TC (mmo/L)** | 4.19 (3.72-4.76) | 4.14 (3.66-4.76) | 4.01 (3.61-4.50) | 4.51 (4.11-5.09) | <0.001 |
| **FBG (mmo/L)** | 4.77 (4.35-5.08) | 4.79 (4.38-5.11) | 4.26 (9.03-4.69) | 4.87 (4.48-5.04) | 0.329 |
| **AFP (ng/ml)** | 2.60 (1.90-3.80) | 2.70 (2.00-4.10) | 2.50 (1.90-3.50) | 2.50 (1.90-3.50) | 0.075 |
| **HBV DNA (IU/mL)** | 1.88E5 (1.8E3-7.06E7) | 2.48E6 (3.18E4-1.34E8) | 6.96E5 (2.43E3-1.73E8) | 4.73E3 (3.93E2-3.5E6) | <0.001 |
| **HBsAg (IU/mL)** | 3.88E3 (9.85E2-2.84E4) | 4.54E3 (1.49E3-3.80E4) | 4.95E3 (9.95E2-4.42E4) | 2.70E3 (5.08E2-2.01E4) | 0.157 |
| **HBcAb (S/CO)** | 9.77 (8.40-11.38) | 10.89 (9.41-12.10) | 8.83 (7.76-9.83) | 8.40 (7.36-9.42) | <0.001 |
| **HBeAg (PEIU/mL)** | 0.26 (0.06-346.87) | 6.74 (0.06-352.63) | 0.09 (0.06-388.81) | 0.10 (0.06-8.93) | 0.014 |
| **LN (ng/ml)** | 16.60 (8.40-29.50) | 19.65 (11.65-29.28) | 13.09 (6.23-35.60) | 12.30 (6.75-20.50) | 0.001 |
| **HA (ng/ml)** | 49.00 (39.00-64.00) | 49.00 (38.00-70.25) | 43.37 (35.13-57.14) | 52.70 (44.34-60.66) | 0.003 |
| **PIIINP (ng/ml)** | 19.70 (13.90-24.30) | 20.10(14.30-24.90) | 15.10 (7.00-19.70) | 22.60 (19.57-30.50) | <0.001 |
| **CIV (ng/ml)** | 21.90 (17.14-32.10) | 23.05 (17.80-30.78) | 21.87 (17.50-45.36) | 19.90 (16.25-27.16) | 0.031 |
| **F0** | 96 (20.38%) | 46 (17.83) | 41 (33.06%) | 9 (10.11%) | <0.001 |
| **F1** | 229 (48.62%) | 118 (45.74%) | 57 (45.97%) | 54 (60.67%) | 0.041 |
| **F2** | 93 (19.75%) | 56 (21.70%) | 14 (11.29%) | 23 (25.84%) | 0.016 |
| **F3** | 40 (8.49%) | 30 (11.63%) | 7 (5.65%) | 3 (3.37%) | 0.023 |
| **F4** | 13 (2.76%) | 8 (3.10%) | 5 (4.03%) | 0（0.00%） | 0.184 |

Note: AFP, Alpha fetoprotein; A/G, Albumin/Globulin; ALP, Alkaline phosphatase; ALT, Alanine aminotransferase; AST, Aspartate aminotransferase; BMI, Body mass index; CHB, chronic hepatitis B; ChE, Cholinesterase; CIV, Collagen IV; DB, Direct bilirubin; FBG, Fasting blood glucose; Fib, Fibrinogen; HA, Hyaluronic acid; HBcAb, Hepatitis B virus core antibody; HBeAg, Hepatitis B virus e antigen; HBsAg; Hepatitis B virus surface antigen; HBV, Hepatitis B virus; DNA, Deoxyribonucleic acid; LN, Laminin; RBCs, Red blood cells; γ-GT, γ-glutamyl transpeptidase; PLT, platelet; PIIINP, Procollagen type Ⅲ N terminal peptide; PT, Prothrombin time; N/L, Neutrophils/Lymphocytes; TB, Total bilirubin; TG, Triglyceride; TC, Total cholesterol; WBC, White blood cell.