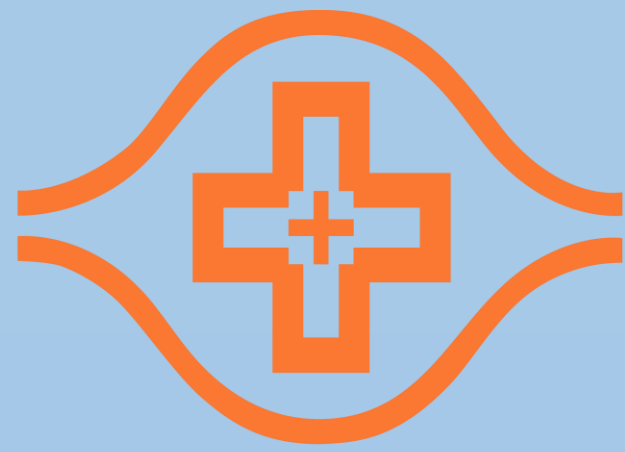


Tumor markers changed among hepatitis C adults after antiviral therapy: Implication for primary healthcare

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Introduction

In the real world, primary healthcare providers frequently explain and address the significance of tumor markers. Traditionally,

- ◆ α -fetoprotein (AFP) is clinically utilized as a tumor marker for liver cancer;
- ◆ carbohydrate antigen-125 (CA125) is associated with ovarian cancer;
- ◆ carbohydrate antigen 19-9 (CA 19-9) is linked to gastrointestinal malignancies,
- ◆ carcinoembryonic antigen (CEA) is employed to detect colorectal cancer. However, some elevated tumor markers are not specific for cancer diseases.

Therefore, clinicians should consider this nonspecific elevation not only for tumor signs but also associated with cardiometabolic disorders. Chronic hepatitis C (CHC) is the leading cause of liver cirrhosis and hepatocellular carcinoma.

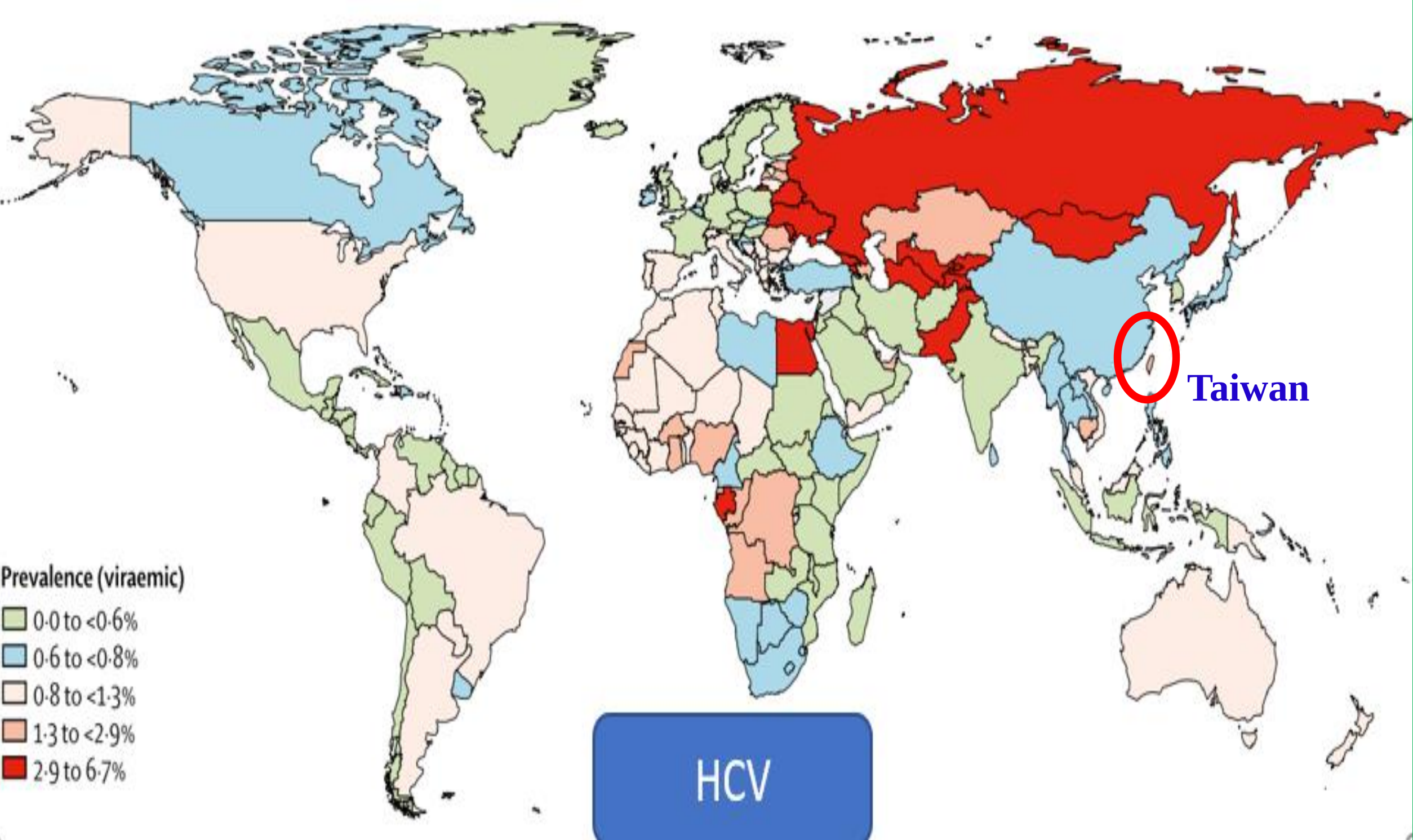
Direct-acting antivirals (DAAs) are highly effective in virus clearance. Longitudinal effects on the tumor markers change are lacking. This study explores the long-term effects on tumor markers, liver, and renal function changes after receiving antivirals.

Methods

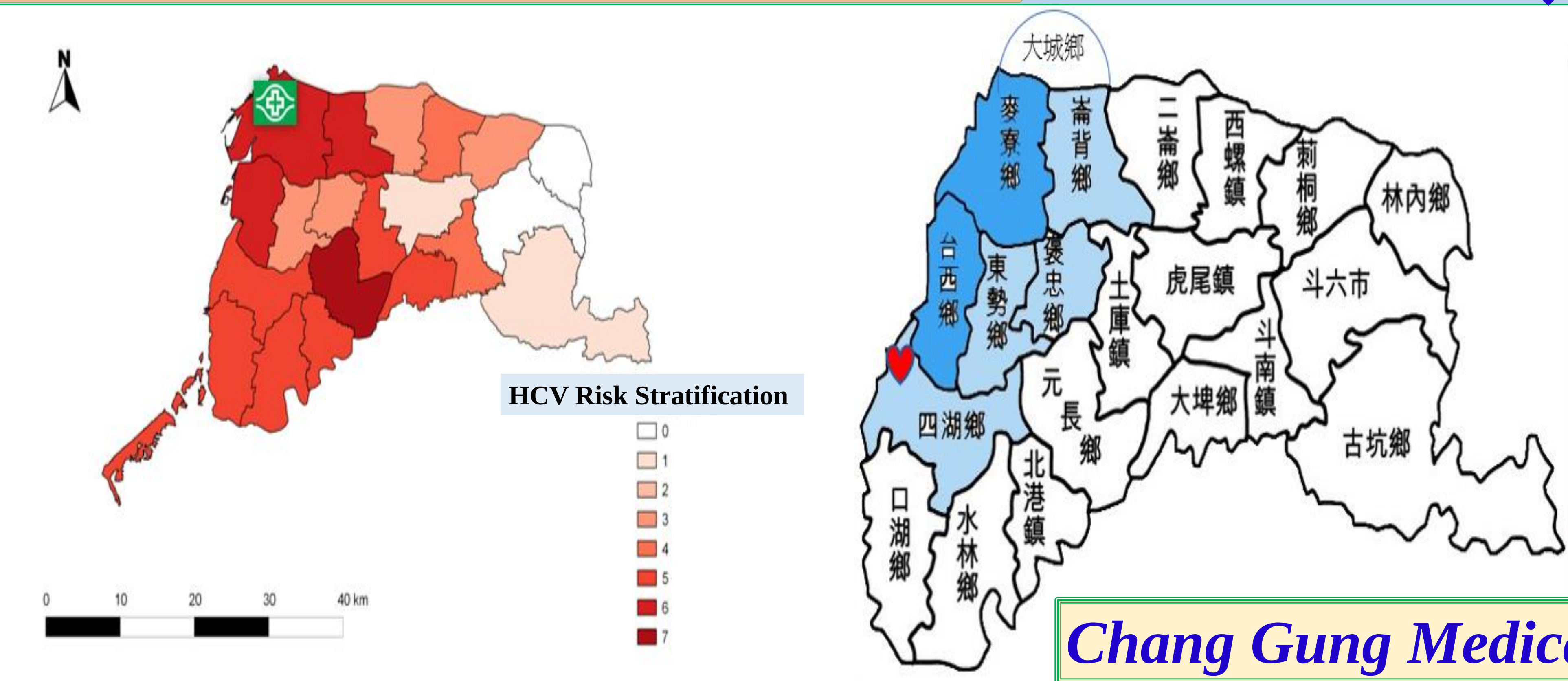
An observational and longitudinal cohort study was applied to the western coastal Yunlin County, Taiwan.

Between July 2017 and December 2021, 191 rural adults with CHC participated in this project. The outcomes measured included four tumor markers and liver and renal function changes before and after DAAs therapy.

The worldwide prevalence of HCV (2019 Lancet Gastroenterol Hepatol)



HCV prevention & treatment in the neighbouring 7 townships of Formosa Plastics Group and Chang Gung Memorial Hospital in Yunlin



Results

The findings showed that the exception of the tumor marker of CEA, AFP, CA125, and CA19-9 had significantly reduced ($p < 0.001$), and all biomarkers of liver and renal function also improved considerably ($p < 0.001$) after antiviral treatment. The regression coefficient of interaction indicated that females had a better chance in the GPT ($p < 0.05$) and GGT ($p < 0.01$).

Table 1: Demographic Characteristics

TABLE 1 Demographics of the participants at initiation of DAAs therapy.

Variable	Men (n = 76)	Women (n = 115)	P value
Duration of two health check-ups, year	4.3 ± 0.96	4.3 ± 1.02	0.775
Demographics			
Age (year)	66.0 ± 13.1	66.6 ± 11.4	0.741
Education (years)	6.2 ± 5.2	3.5 ± 5.0	0.001
Health-related lifestyle			
Intake of vegetable ≥ 3 portions per day (usually/always)	53 (69.7)	65 (57.5)	0.095
Intake fruit ≥ 2 portions per day (usually/always)	36 (47.4)	56 (49.6)	0.882
Regular exercise (usually/always)	21 (27.6)	26 (23.0)	0.493
Smoking (current/former)	50 (65.8)	2 (1.8)	<0.001
Alcoholic drinking (current/former)	18 (23.7)	1 (0.9)	<0.001
Betel chewing (current/former)	12 (15.8)	0 (0.0)	<0.001

Abbreviation: DAA, direct-acting antivirals; Data were presented as mean ± standard deviation or frequency (percentage).

Table 2: Liver function & tumor markers changed before & after DAA treatment

Table 2. Liver Function and tumor markers changed before and after DAA treatment.

Variables	Valid N	Before treatment	After treatment	P value
Tumor markers				
AFP	190	3.1 [2.3, 5.0]	2.4 [1.8, 3.6]	<0.001
CEA	190	2.4 [1.5, 3.6]	2.3 [1.6, 3.6]	0.440
CA199	189	19.0 [11.4, 32.2]	12.0 [7.6, 19.8]	<0.001
CA125	118	12.0 [9.1, 15.9]	9.8 [7.0, 13.4]	<0.001
AFP ≥ 15	190	9 (4.7)	4 (2.1)	0.125
CEA > 10	190	2 (1.1)	1 (0.53)	1.000
ca199 ≥ 37	189	34 (18.0)	12 (6.3)	<0.001
CA125 ≥ 35	118	1 (0.85)	1 (0.85)	1.000
Liver function				
GOT	191	36.0 [27.0, 54.0]	20.0 [17.0, 23.0]	<0.001
GPT	191	45.0 [31.0, 75.0]	18.0 [14.0, 24.0]	<0.001
GGT	191	34.0 [21.0, 61.0]	16.0 [12.0, 25.0]	<0.001
GOT ≥ 35	191	102 (53.4)	11 (5.8)	<0.001
GPT > 40	191	105 (55.0)	11 (5.8)	<0.001
GGT ≥ 37	191	93 (48.7)	22 (11.5)	<0.001

Abbreviation: DAA, direct-acting antivirals; AFP, α -fetoprotein; CEA, carcinoembryonic antigen; CA125, carbohydrate antigen-125; CA19-9, carbohydrate antigen 19-9.

- ◆ HCV biochemical testing items:
qHBsAg、HCV Ag、anti-HCV、AST/ALT



Chang Gung Medical Health Promotion Team