

Supplementary material

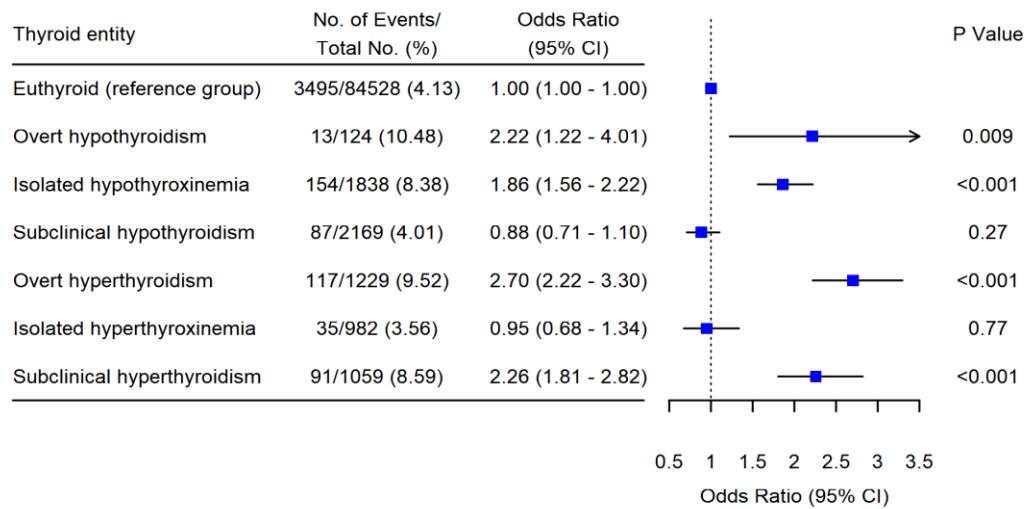


Figure S1. Odds ratios for liver enzyme abnormalities according to thyroid dysfunction categories in early pregnancy (N=91,929). Models were adjusted for maternal age, prepregnancy BMI, parity, educational level, medical insurance status, TPOAb positivity, IVF conception, and gestational age at liver function testing.

Abbreviations: BMI, body mass index; FT4, free thyroxine; TSH, thyroid-stimulating hormone; OR, odds ratio; CI, confidence interval.

Table S1. Subgroup analyses of the associations between FT4 levels and liver enzyme abnormalities during early pregnancy according to hepatitis virus subtype.

Variables	FT4 categories	No. of cases/ total No. (%)	cOR (95% CI)	aOR (95% CI) ^a
Hepatic virus status				
Negative	Normal	3,515/84,258 (4.17)	1.00 (Ref)	1.00 (Ref)
	Low	159/1,869 (8.51)	2.14 (1.81–2.52)	1.89 (1.59–2.25)
	High	146/2,142 (6.82)	1.68 (1.42–1.99)	1.88 (1.58–2.24)
HAV Positive	Normal	5/93 (5.38)	1.00 (Ref)	1.00 (Ref)
	Low	0/1 (0)	/	/
	High	0/2 (0)	/	/
HBV Positive	Normal	131/3,164 (4.14)	1.00 (Ref)	1.00 (Ref)
	Low	8/89 (8.99)	2.29 (1.08–4.83)	2.37 (1.11–5.07)
	High	6/66 (9.09)	2.32 (0.98–5.46)	2.39 (1.01–5.69)
HCV Positive	Normal	11/101 (10.89)	1.00 (Ref)	1.00 (Ref)
	Low	0/2 (0)	/	/
	High	0/4 (0)	/	/
HEV Positive	Normal	11/140 (7.86)	1.00 (Ref)	1.00 (Ref)
	Low	1/7 (14.29)	1.95 (0.22–17.72)	1.32 (0.10–18.22)
	High	1/3 (33.33)	5.86 (0.49–69.89)	5.17 (0.37–71.37)

Models were adjusted for maternal age, prepregnancy BMI, parity, educational level, medical insurance status, conception method, and gestational age at liver function testing.

Abbreviations: BMI, body mass index; FT4, free thyroxine; TSH, thyroid-stimulating hormone; cOR, crude odds ratio; aOR, adjusted odds ratio; CI, confidence interval.

Table S2. Subgroup analyses of the associations between TSH levels and liver enzyme abnormalities in early pregnancy.

Variables	TSH categories ^a	No. of cases/ total No. (%)	cOR (95% CI)	aOR (95% CI) ^b
Maternal age, y				
<35	Normal	3,017/72,606 (4.16)	1.00 (Ref)	1.00 (Ref)
	Low	174/1,914 (9.09)	2.31 (1.97–2.71)	2.54 (2.15–2.99)
	High	91/1,980 (4.60)	1.11 (0.90–1.38)	1.03 (0.83–1.29)
≥35	Normal	667/14,742 (4.52)	1.00 (Ref)	1.00 (Ref)
	Low	35/380 (9.21)	2.14 (1.50–3.06)	2.21 (1.54–3.18)
	High	10/319 (3.13)	0.68 (0.36–1.29)	0.57 (0.30–1.09)
Prepregnancy BMI				
<18.5	Normal	260/12,457 (2.09)	1.00 (Ref)	1.00 (Ref)
	Low	36/440 (8.18)	4.18 (2.91–6.01)	4.21 (2.91–6.11)
	High	9/364 (2.47)	1.19 (0.61–2.33)	1.07 (0.54–2.11)
18.5–23.9	Normal	2,580/63,564 (4.06)	1.00 (Ref)	1.00 (Ref)
	Low	153/1,672 (9.15)	2.38 (2.01–2.82)	2.41 (2.02–2.87)
	High	71/1,651 (4.30)	1.06 (0.83–1.35)	0.96 (0.75–1.23)
≥24	Normal	844/11,327 (7.45)	1.00 (Ref)	1.00 (Ref)
	Low	20/182 (10.99)	1.53 (0.96–2.45)	1.59 (0.99–2.56)
	High	21/284 (7.39)	0.99 (0.63–1.56)	0.87 (0.55–1.38)
TPOAb status ^c				
Negative	Normal	3,328/78,460 (4.24)	1.00 (Ref)	1.00 (Ref)
	Low	190/2,039 (9.32)	2.32 (1.99–2.70)	2.53 (2.16–2.96)
	High	72/1,626 (4.43)	1.05 (0.82–1.33)	0.93 (0.73–1.19)
Positive	Normal	348/8,774 (3.97)	1.00 (Ref)	1.00 (Ref)
	Low	19/253 (7.51)	1.97 (1.22–3.18)	2.02 (1.24–3.29)
	High	28/669 (4.19)	1.06 (0.71–1.57)	1.00 (0.67–1.49)

Hepatitis virus
status

Negative	Normal	3,521/83,821 (4.20)	1.00 (Ref)	1.00 (Ref)
	Low	202/2,213 (9.13)	2.29 (1.97– 2.66)	2.50 (2.15–2.91)
	High	97/2,235 (4.34)	1.03 (0.84– 1.27)	0.95 (0.77–1.17)
Positive	Normal	163/3,527 (4.62)	1.00 (Ref)	1.00 (Ref)
	Low	7/81 (8.64)	1.95 (0.89– 4.31)	2.03 (0.91–4.50)
	High	4/64 (6.25)	1.38 (0.49– 3.83)	1.30 (0.46–3.65)

^a Low TSH: <2.5th percentile, <0.015 mIU/L; High TSH: >97.5th percentile, >3.698 mIU/L).

^b Adjusted for maternal age, prepregnancy BMI, parity, educational level, medical insurance status, TPOAb positivity, conception method, and gestational age at liver function testing. The corresponding grouping factor was removed from the covariates in subgroup analysis.

^c Data were available for 91,821 women.

Abbreviations: BMI, body mass index; TSH, thyroid-stimulating hormone; cOR, crude odds ratio; aOR, adjusted odds ratio; CI, confidence interval; TPOAb, thyroid peroxidase antibody.

Table S3. Sensitivity analysis 1: Associations of FT4 and TSH levels with ALT-defined and AST-defined liver enzyme abnormalities separately in early pregnancy.

Variables	No. of cases/total No. (%) [#]	cOR (95% CI)	aOR (95% CI) ^c
ALT-defined liver enzyme abnormalities			
FT4 in early pregnancy			
Normal	3601/87756 (4.10)	1.0 (ref)	1.0 (ref)
Low	166/1968 (8.43)	2.15 (1.83-2.53)	1.90 (1.61-2.26)
High	150/2217 (6.77)	1.70 (1.43-2.01)	1.89 (1.59-2.25)
TSH in early pregnancy			
Normal	3614/87348 (4.14)	1.0 (ref)	1.0 (ref)
Low	205/2294 (8.94)	2.27 (1.96-2.63)	2.47 (2.12-2.87)
High	98/2299 (4.26)	1.03 (0.84-1.27)	0.95 (0.77-1.17)
AST-defined liver enzyme abnormalities [#]			
FT4 in early pregnancy			
Normal	1,305/74,595 (1.75)	1.00 (Ref)	1.00 (Ref)
Low	74/1,920 (3.85)	2.25 (1.77–2.86)	1.86 (1.46–2.39)
High	64/1,594 (4.02)	2.35 (1.82–3.03)	2.59 (2.00–3.36)
TSH in early pregnancy			
Normal	1,313/74,206 (1.77)	1.00 (Ref)	1.00 (Ref)
Low	95/1,938 (4.90)	2.86 (2.31–3.54)	2.94 (2.36–3.65)
High	35/1,965 (1.78)	1.01 (0.72–1.41)	0.86 (0.61–1.22)

[#] ALT-defined analyses: N=91,941; AST-defined analyses: N=78,109 (measured AST only).

Normal FT4: 2.5th–97.5th percentile, 11.1–18.7 pmol/L; low FT4: <2.5th percentile, <11.1 pmol/L; high FT4: >97.5th percentile, >18.7 pmol/L. Normal TSH: 2.5th–97.5th percentile, 0.015–3.698 mIU/L; low TSH: <2.5th percentile, <0.015 mIU/L; high TSH: >97.5th percentile, >3.698 mIU/L.

Multivariable models were adjusted for maternal age, prepregnancy BMI, parity, educational level, medical insurance status, conception method, TPOAb positivity, and gestational age at liver function testing.

Abbreviations: BMI, body mass index; FT4, free thyroxine; TSH, thyroid-stimulating hormone; ALT, alanine aminotransferase; AST, aspartate aminotransferase; cOR, crude odds ratio; aOR,

adjusted odds ratio; CI, confidence interval; TPOAb, thyroid peroxidase antibody.

Table S4. Sensitivity analysis 2: Associations of FT4 and TSH levels with liver enzyme abnormalities using a more stringent outcome definition (ALT or AST $\geq$ 80 U/L).

Variables	No. of cases/total No. (%) [#]	cOR (95% CI)	aOR (95% CI)
FT4 in early pregnancy			
Normal	878/74,645 (1.18)	1.00 (Ref)	1.00 (Ref)
Low	43/1,920 (2.24)	1.92 (1.41–2.62)	1.47 (1.06–2.03)
High	48/1,599 (3.00)	2.60 (1.94–3.49)	2.99 (2.21–4.05)
TSH in early pregnancy			
Normal	875/74,256 (1.18)	1.00 (Ref)	1.00 (Ref)
Low	66/1,942 (3.40)	2.95 (2.29–3.80)	3.09 (2.37–4.01)
High	28/1,966 (1.42)	1.21 (0.83–1.77)	1.00 (0.68–1.49)

[#] N=78,164. Women with missing AST were retained only if ALT was $\geq$ 80 U/L; otherwise, the strict composite outcome was unavailable.

Normal FT4 level (2.5th–97.5th percentile, 11.1–18.7 pmol/L), low FT4 level (<2.5th percentile, <11.1 pmol/L), high FT4 level (>97.5th percentile, >18.7 pmol/L); Normal TSH level (2.5th–97.5th percentile, 0.015–3.698 mIU/L), low TSH level (<2.5th percentile, <0.015 mIU/L), high TSH level (>97.5th percentile, >3.698 mIU /L).

The multivariable models were adjusted for maternal age, prepregnancy BMI, parity, education levels, medical insurance status, TPOAb positivity, approach to conception, and gestational weeks for liver function tests.

Abbreviations: BMI, body mass index; FT4, free thyroxine; TSH, thyroid-stimulating hormone; ALT, alanine aminotransferase; AST, aspartate aminotransferase; cOR, crude odds ratio; aOR, adjusted odds ratio; CI, confidence interval; TPOAb, thyroid peroxidase antibody.

Table S5. Sensitivity analysis 3: Odds of liver enzyme abnormalities in early pregnancy with different FT4 and TSH levels after excluding women with documented hyperemesis gravidarum or severe early-pregnancy vomiting.

Variables	No. of cases/total No. (%) [#]	cOR (95% CI)	aOR (95% CI) ^c
FT4 in early pregnancy			
Normal	3,662/87,623 (4.18)	1.00 (Ref)	1.00 (Ref)
Low	168/1,965 (8.55)	2.14 (1.82–2.52)	1.90 (1.60–2.25)
High	148/2,201 (6.72)	1.65 (1.39–1.96)	1.84 (1.55–2.18)
TSH in early pregnancy			
Normal	3,674/87,220 (4.21)	1.00 (Ref)	1.00 (Ref)
Low	203/2,272 (8.93)	2.23 (1.92–2.59)	2.42 (2.08–2.81)
High	101/2,297 (4.40)	1.05 (0.85–1.28)	0.96 (0.78–1.18)

[#] N=91,789

Normal FT4 level (2.5th–97.5th percentile, 11.1–18.7 pmol/L), low FT4 level (<2.5th percentile, <11.1 pmol/L), high FT4 level (>97.5th percentile, >18.7 pmol/L); Normal TSH level (2.5th–97.5th percentile, 0.015–3.698 mIU/L), low TSH level (<2.5th percentile, <0.015 mIU/L), high TSH level (>97.5th percentile, >3.698 mIU /L).

The multivariable models were adjusted for maternal age, prepregnancy BMI, parity, education levels, medical insurance status, TPOAb positivity, approach to conception, and gestational weeks for liver function tests.

Abbreviations: BMI, body mass index; FT4, free thyroxine; TSH, thyroid-stimulating hormone; ALT, alanine aminotransferase; AST, aspartate aminotransferase; cOR, crude odds ratio; aOR, adjusted odds ratio; CI, confidence interval; TPOAb, thyroid peroxidase antibody.

Table S6. Sensitivity analysis 4: Associations of FT4 and TSH levels with liver enzyme abnormalities in early pregnancy after additional adjustment for first-trimester hCG concentrations (N=22,619).

Variables	No. of cases/total No. (%)	cOR (95% CI)	aOR1 (95% CI) ^c	aOR2 (95% CI) ^c
FT4 in early pregnancy				
Normal	992/21,721 (4.57)	1.00 (Ref)	1.00 (Ref)	1.00 (Ref)
Low	21/234 (8.97)	2.06 (1.31–3.24)	1.37 (0.85–2.21)	1.38 (0.86–2.23)
High	48/664 (7.23)	1.63 (1.21–2.20)	1.93 (1.42–2.63)	1.93 (1.42–2.62)
TSH in early pregnancy				
Normal	986/21,352 (4.62)	1.00 (Ref)	1.00 (Ref)	1.00 (Ref)
Low	45/556 (8.09)	1.82 (1.33–2.48)	2.00 (1.45–2.76)	2.01 (1.46–2.77)
High	30/711 (4.22)	0.91 (0.63–1.32)	0.87 (0.59–1.27)	0.87 (0.59–1.27)

Normal FT4: 2.5th–97.5th percentile, 11.1–18.7 pmol/L; low FT4: <2.5th percentile, <11.1 pmol/L; high FT4: >97.5th percentile, >18.7 pmol/L. Normal TSH: 2.5th–97.5th percentile, 0.015–3.698 mIU/L; low TSH: <2.5th percentile, <0.015 mIU/L; high TSH: >97.5th percentile, >3.698 mIU/L.

aOR1: adjusted for maternal age, prepregnancy BMI, parity, educational level, medical insurance status, conception method, TPOAb positivity, and gestational age at liver function testing.

aOR2: additionally adjusted for first-trimester serum hCG concentrations.

Abbreviations: hCG, human chorionic gonadotropin; BMI, body mass index; FT4, free thyroxine; TSH, thyroid-stimulating hormone; cOR, crude odds ratio; aOR, adjusted odds ratio; CI, confidence interval; TPOAb, thyroid peroxidase antibody.

Table S7. Baseline characteristics of women with and without available first-trimester hCG data.

	Women with hCG data	Women without hCG data	<i>P</i> value
N (%)	22619 (24.6)	69322 (75.4)	
Age, years, mean (SD)	30.6 (3.6)	30.7 (3.9)	0.038 ^a
Age category, years, n (%)			
<25	506 (2.2)	2194 (3.2)	<0.001 ^b
25-34	18680 (82.6)	55120 (79.5)	
≥35	3433 (15.2)	12008 (17.3)	
Prepregnancy BMI, kg/m ² , n (%)			
<18.5	3240 (14.3)	10021 (14.5)	0.065 ^b
18.5-23.9	16573 (73.3)	50314 (72.6)	
≥24	2806 (12.4)	8987 (13.0)	
Parity (%)			
Nulliparity	17679 (78.2)	50257 (72.5)	<0.001 ^b
Multiparity	4940 (21.8)	19065 (27.5)	
Education levels, n (%)			
Below college	1549 (6.8)	5542 (8.0)	<0.001 ^b
College	16540 (73.1)	49839 (71.9)	
Above college	4530 (20.0)	13941 (20.1)	
Medical insurance status, n (%)			
Without	4659 (20.6)	16197 (23.4)	<0.001 ^b
With	17960 (79.4)	53125 (76.6)	
FT4 in early pregnancy, pmol/L, median (IQR)	14.3 [13.3, 15.5]	13.9 [12.8, 15.1]	<0.001 ^c
TSH in early pregnancy, mIU/L, median (IQR)	1.2 [0.7, 1.9]	1.1 [0.6, 1.8]	<0.001 ^c
TPOAb status, n (%)			
Negative	20196 (89.3)	61929 (89.3)	<0.001 ^b
Positive	2418 (10.7)	7278 (10.5)	
Unknown	5 (0.0)	115 (0.2)	
Hepatitis virus status, n (%)			
Negative	21758 (96.2)	66511 (95.9)	0.098 ^b
Positive	861 (3.8)	2811 (4.1)	
Conceived after IVF			
No	22299 (98.6)	64252 (92.7)	<0.001 ^b
Yes	320 (1.4)	5070 (7.3)	
ALT level in early pregnancy, U/L, median (IQR)	13.0 [9.0, 19.0]	12.0 [9.0, 18.0]	<0.001 ^c
AST level in early pregnancy, U/L, median (IQR)	17.0 [15.0, 21.0]	17.0 [15.0, 20.0]	<0.001 ^c

Gestational weeks for liver function test (median (IQR))	12.3 [11.7, 12.6]	12.3 [11.7, 12.6]	<0.001 ^c
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^a Welch's t test; ^b Chi-square test; ^c Mann-Whitney U test.

Abbreviations: SD, standard deviation; BMI, body mass index; IQR, interquartile ranges; FT4, free thyroxine; TSH, thyroid-stimulating hormone; TPOAb, thyroid peroxidase antibody; IVF, *in vitro* fertilization; ALT, alanine aminotransferase; AST, aspartate aminotransferase.

Table S8. Joint associations of prepregnancy BMI and abnormal FT4 levels with liver enzyme abnormalities in early pregnancy.

Variables	FT4 categories	Groups	cOR (95% CI)	aOR (95% CI) ^a	P for interaction
Prepregnancy BMI					
18.5-23.9	Normal	BMI 18.5-23.9 & Normal FT4 (Reference)	1.00 (Ref)	1.00 (Ref)	0.004
	Low	BMI 18.5-23.9 & Low FT4	2.13 (1.74–2.62)	2.24 (1.81–2.77)	
	High	BMI 18.5-23.9 & High FT4	1.76 (1.44–2.15)	1.75 (1.43–2.14)	
<18.5	Normal	BMI <18.5 & Normal FT4	0.51 (0.45–0.58)	0.50 (0.44–0.56)	
	Low	BMI <18.5 & Low FT4	1.88 (1.01–3.47)	1.70 (0.91–3.20)	
	High	BMI <18.5 & High FT4	1.37 (0.94–2.01)	1.36 (0.93–2.00)	
≥24	Normal	BMI ≥24 & Normal FT4	1.88 (1.73–2.04)	1.92 (1.76–2.08)	
	Low	BMI ≥24 & Low FT4	2.49 (1.87–3.31)	2.47 (1.84–3.32)	
	High	BMI ≥24 & High FT4	3.42 (2.02–5.78)	3.70 (2.17–6.33)	

Normal FT4: 2.5th–97.5th percentile, 11.1–18.7 pmol/L; low FT4: <2.5th percentile, <11.1 pmol/L; high FT4: >97.5th percentile, >18.7 pmol/L.

The multivariable regression models were adjusted for maternal age, parity, educational level, medical insurance status, TPOAb positivity, conception method, and gestational age at liver function testing. P for interaction was derived from a likelihood ratio test comparing multivariable logistic regression models with and without the prepregnancy BMI × FT4 cross-product terms.

Abbreviations: BMI, body mass index; FT4, free thyroxine; cOR, crude odds ratio; aOR, adjusted odds ratio; CI, confidence interval, TPOAb, thyroid peroxidase antibody.

Table S9. Joint associations of prepregnancy BMI and abnormal TSH levels with liver enzyme abnormalities in early pregnancy.

Variables	TSH categories	Groups	cOR (95% CI)	aOR (95% CI) ^a	P for interaction
Prepregnancy BMI					
18.5–23.9	Normal	BMI 18.5-23.9 & Normal TSH (Reference)	1.00 (Ref)	1.00 (Ref)	
	Low	BMI 18.5-23.9 & Low TSH	2.38 (2.01–2.82)	2.41 (2.02–2.86)	
	High	BMI 18.5-23.9 & High TSH	1.06 (0.83–1.35)	0.97 (0.76–1.23)	
<18.5	Normal	BMI <18.5 & Normal TSH	0.50 (0.44–0.57)	0.49 (0.43–0.56)	0.02
	Low	BMI <18.5 & Low TSH	2.11 (1.49–2.97)	2.03 (1.43–2.87)	
	High	BMI <18.5 & High TSH	0.60 (0.31–1.16)	0.54 (0.28–1.05)	
≥24	Normal	BMI ≥24 & Normal TSH	1.90 (1.76–2.06)	1.93 (1.78–2.10)	
	Low	BMI ≥24 & Low TSH	2.92 (1.83–4.65)	2.98 (1.85–4.81)	
	High	BMI ≥24 & High TSH	1.89 (1.21–2.95)	1.69 (1.07–2.69)	

Normal TSH: 2.5th–97.5th percentile, 0.015–3.698 mIU/L; low TSH: <2.5th percentile, <0.015 mIU/L; high TSH: >97.5th percentile, >3.698 mIU/L.

The multivariable regression models were adjusted for maternal age, parity, educational level, medical insurance status, TPOAb positivity, conception method, and gestational age at liver function testing. P for interaction was derived from a likelihood ratio test comparing multivariable logistic regression models with and without the prepregnancy BMI × TSH cross-product terms.

Abbreviations: BMI, body mass index; TSH, thyroid-stimulating hormone; TPOAb, thyroid peroxidase antibody; cOR, crude odds ratio; aOR, adjusted odds ratio; CI, confidence interval.

Table S10. Joint associations of hepatitis virus positivity and abnormal FT4 levels with liver enzyme abnormalities in early pregnancy.

Variables	FT4 categories	Groups	cOR (95% CI)	aOR (95% CI) ^a	P for interaction
Hepatic virus status					
Negative	Normal	Hepatic virus negative & Normal FT4 (Reference)	1.00 (Ref)	1.00 (Ref)	0.86
	Low	Hepatic virus negative & Low FT4	2.14 (1.81–2.52)	1.90 (1.60–2.26)	
	High	Hepatic virus negative & High FT4	1.68 (1.42–1.99)	1.87 (1.57–2.23)	
Positive	Normal	Hepatic virus positive & Normal FT4	1.09 (0.92–1.28)	1.08 (0.91–1.27)	
	Low	Hepatic virus positive & Low FT4	2.30 (1.16–4.56)	1.84 (0.89–3.81)	
	High	Hepatic virus positive & High FT4	2.36 (1.09–5.15)	2.47 (1.12–5.44)	

Normal FT4: 2.5th–97.5th percentile, 11.1–18.7 pmol/L; low FT4: <2.5th percentile, <11.1 pmol/L; high FT4: >97.5th percentile, >18.7 pmol/L.

The multivariable regression models were adjusted for maternal age, prepregnancy BMI, parity, educational level, medical insurance status, TPOAb positivity, conception method, and gestational age at liver function testing. P for interaction was derived from a likelihood ratio test comparing multivariable logistic regression models with and without the hepatic virus infection status × FT4 cross-product terms.

Abbreviations: FT4, free thyroxine; TPOAb, thyroid peroxidase antibody; cOR, crude odds ratio; aOR, adjusted odds ratio; CI, confidence interval.

Table S11. Joint associations of hepatitis virus positivity and abnormal TSH levels with liver enzyme abnormalities in early pregnancy.

Variables	TSH categories	Groups	cOR (95% CI)	aOR (95% CI) ^a	P for interaction
Hepatic virus status					
Negative	Normal	Hepatic virus negative & Normal TSH (Reference)	1.00 (Ref)	1.00 (Ref)	0.81
	Low	Hepatic virus negative & Low TSH	2.29 (1.97–2.66)	2.49 (2.14–2.90)	
	High	Hepatic virus negative & High TSH	1.03 (0.84–1.27)	0.95 (0.77–1.18)	
Positive	Normal	Hepatic virus positive & Normal TSH	1.11 (0.94–1.30)	1.09 (0.93–1.29)	
	Low	Hepatic virus positive & Low TSH	2.16 (0.99–4.69)	2.12 (0.95–4.69)	
	High	Hepatic virus positive & High TSH	1.52 (0.55–4.19)	1.13 (0.40–3.19)	

Normal TSH: 2.5th–97.5th percentile, 0.015–3.698 mIU/L; low TSH: <2.5th percentile, <0.015 mIU/L; high TSH: >97.5th percentile, >3.698 mIU/L.

The multivariable regression models were adjusted for maternal age, prepregnancy BMI, parity, educational level, medical insurance status, TPOAb positivity, conception method, and gestational age at liver function testing. P for interaction was derived from a likelihood ratio test comparing multivariable logistic regression models with and without the hepatic virus infection status × TSH cross-product terms.

Abbreviations: BMI, body mass index; TSH, thyroid-stimulating hormone; TPOAb, thyroid peroxidase antibody; cOR, crude odds ratio; aOR, adjusted odds ratio; CI, confidence interval.

Table S12. Definition of joint thyroid function, prepregnancy BMI, and hepatitis virus status exposure categories.

Analysis	Thyroid category	Co-exposure category	Reference group
FT4 and BMI (Table S8)	Low, normal, or high FT4	BMI <18.5, 18.5–23.9, or ≥ 24.0 kg/m ²	Normal FT4 and BMI 18.5–23.9 kg/m ²
TSH and BMI (Table S9)	Low, normal, or high TSH	BMI <18.5, 18.5–23.9, or ≥ 24.0 kg/m ²	Normal TSH and BMI 18.5–23.9 kg/m ²
FT4 and hepatitis virus status (Table S10)	Low, normal, or high FT4	Hepatitis virus negative or positive	Normal FT4 and hepatitis virus negative
TSH and hepatitis virus status (Table S11)	Low, normal, or high TSH	Hepatitis virus negative or positive	Normal TSH and hepatitis virus negative

Low and high FT4 or TSH were defined using the same 2.5th–97.5th percentile reference intervals used in all analyses. The P for interaction reported in Tables S8–S11 is one overall likelihood-ratio-test P value for the corresponding cross-product terms.

Abbreviations: BMI, body mass index; FT4, free thyroxine ; TSH, thyroid-stimulating hormone.