## The Association between Interferon-gamma +874 T/A Polymorphism and Susceptibility

### of Chronic Hepatitis B with Liver Cirrhosis : An Update Meta Analysis

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# Background

- The host genetic profile and polymorphism has many effects on cytokine function and production.  $\succ$  Interferron gamma (IFN- $\gamma$ ) is a crucial cytokine in host immune response and defense against hepatitis B virus (HBV) infection.
- The aim of this study was determined Interferon-

## Results

A total of 3 studies involved 209 chronic hepatitis B with Liver Cirrhosis and 319 control participants were included in this meta-analysis. Result showed that Allelic Model T vs A (OR 0.72, 95%CI: 0.55 - 0.95; P=0.02), Dominant Model TT+TA vs AA (OR 0.66, 95%CI: 0.44 - 0.99; P=0.04) and Heterozygote model TA vs AA (OR 0.52, 95%CI: 0.34 -0.80; P=0.003) decreased risk of CHB with LC significantly. Recessive model TT vs TA+AA increased risk of CHB with LC significantly (OR 2.13, 95%CI: 1.24 – 3.67; P=0.006).

 $\gamma$ +874 T/A Polymorphism and risk of chronic hepatitis B (CHB) infection with liver cirrhosis (LC).

# Methods

Search strategi and study selection:

- Databese: PubMed and proquest
- Data search: August 2021

Following Keyword: ("Hepatitis B" OR "chronic hepatitis B" OR "hepatitis B virus" OR "HBV") AND ("Cirrhosis") AND ("Interferonγ" OR "Interferon-gamma") AND ("polymorphism" OR "single nucleotide polymorphism" OR "SNP")

### Inclusion study:

1.case control studies

2. studies evaluating Interferon-gamma +874 T/A Polymorphism in Chronic Hepatitis B with Liver Cirrhosis and control group

There is no significant different in homozygous model TT vs AA (P=0.28) in risk of CHB with LC.

	Hepatitis B and Cirrhosis		Control			Odds Ratio		Odds Ratio
Study or Subgroup	Events	Total	Events	Total	Weight	M-H, Fixed, 95% Cl	Year	M-H, Fixed, 95% CI
Conde 2013	11	46	55	194	13.3%	0.79 [0.38, 1.67]	2013	
Saxena 2014	49	120	118	292	33.6%	1.02 [0.66, 1.57]	2014	
Srivastata 2014	103	252	87	152	53.1%	0.52 [0.34, 0.78]	2014	
Total (95% CI)		418		638	100.0%	0.72 [0.55, 0.95]		•
Total events	163		260					
Heterogeneity: Chi <sup>2</sup> =	5.07, df = 2 (P = 0.08	3); I <sup>2</sup> = 619	6				+	05 0.2 1 5 20
Test for overall effect: Z = 2.32 (P = 0.02)							υ.	05 0.2 1 5 20 Control Hepatitis B and Cirrhosis

#### Figure 2. Forrest Plot of Gene Model T vs A (Allelic model)

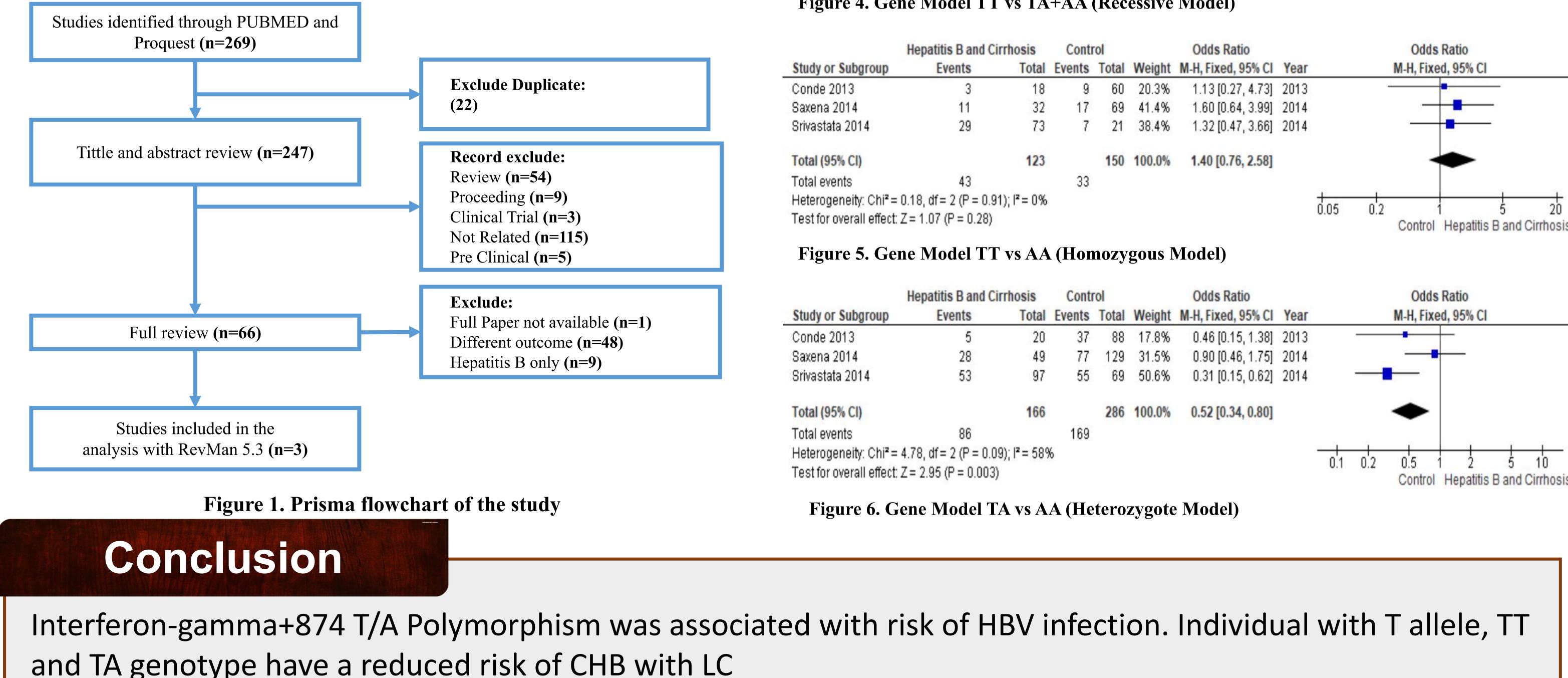
	Hepatitis B and Cirrhosis		Control			Odds Ratio		Odds Ratio	
Study or Subgroup	Events	Total	Events	Total	Weight	M-H, Fixed, 95% Cl	Year	M-H, Fixed, 95% CI	
Conde 2013	8	23	46	97	19.9%	0.59 [0.23, 1.52]	2013		
Saxena 2014	39	60	94	146	33.2%	1.03 [0.55, 1.93]	2014	· · · · · · · · · · · · · · · · · · ·	

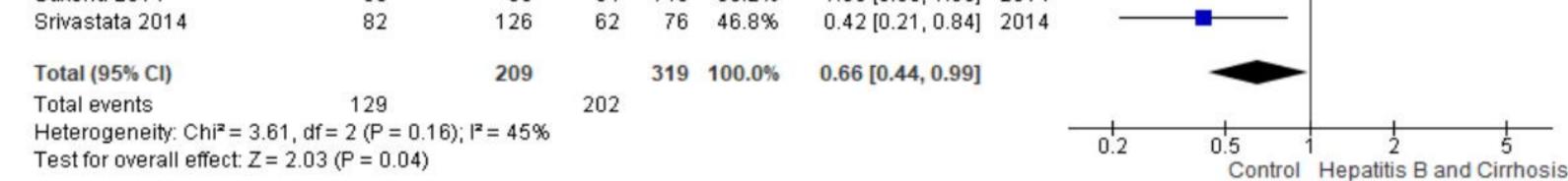
### Outcome:

Odds Ratio (OR) and 95%CI of CHB with LC Susceptibility in dominant model (TT+TA vs AA), recessive model (TT vs TA+AA), allelic model (T vs A), Homozygous Model (TT vs AA), and Heterozygous Model (TA vs AA)

### **Data Analysis:**

• Revman 5.3.

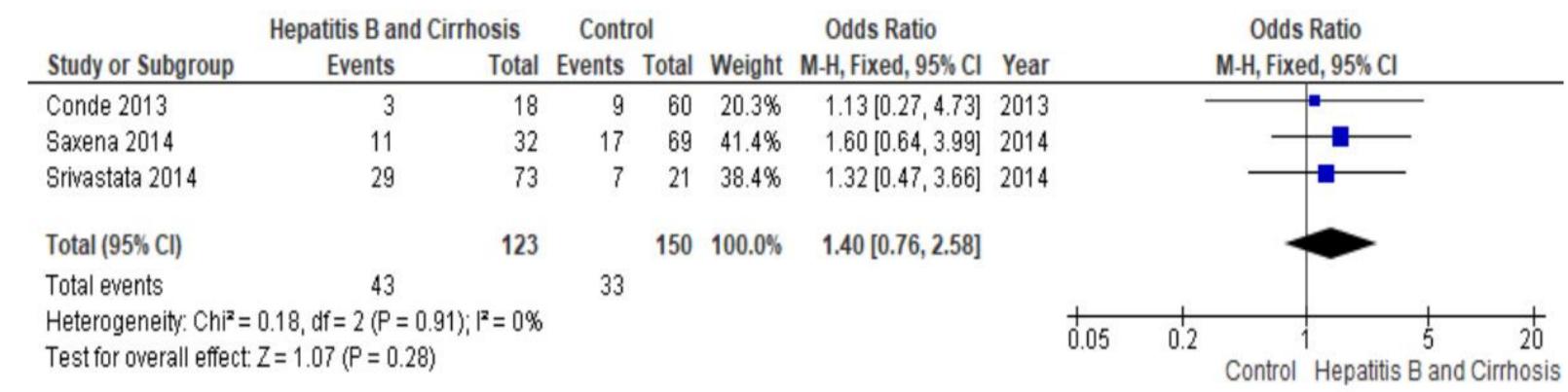




#### **Figure 3. Gene Model TT+TA vs AA (dominant Model)**

	Hepatitis B and Cirrhosis		Control		Odds Ratio			Odds Ratio		
Study or Subgroup	Events	Total	Events	Total	Weight	M-H, Fixed, 95% Cl	Year		M-H, Fixed, 95% (	
Conde 2013	3	23	9	97	16.8%	1.47 [0.36, 5.91]	2013			
Saxena 2014	11	60	17	146	45.4%	1.70 [0.75, 3.89]	2014			-
Srivastata 2014	29	126	7	76	37.7%	2.95 [1.22, 7.11]	2014			
Total (95% CI)		209		319	100.0%	2.13 [1.24, 3.67]			-	•
Total events	43		33							
Heterogeneity: Chi <sup>2</sup> =	1.08, df = 2 (P = 0.58	3); I <sup>2</sup> = 0%						-	+ <u>+</u>	
Test for overall effect:	$Z = 2.74 \ (P = 0.006)$							0.05	0.2 1 Control Hepatit	5 20 is B and Cirrhosis

#### Figure 4. Gene Model TT vs TA+AA (Recessive Model)



Keywords: Interferon-gamma+874 T/A, Polymorphism, Chronic Hepatitis B, HBV infection