



# 19th Annual WORLD CONGRESS INSULIN RESISTANCE DIABETES & CARDIOVASCULAR DISEASE *Exploring New Frontiers In Metabolism - Tomorrow's Clinical Science Today*

## ASSOCIATION BETWEEN HYPERTENSION AND SEVERITY OF NAFLD AMONG ADULTS WITH OBESITY

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### BACKGROUND

Cardiovascular diseases are the main cause of mortality in Non-alcoholic fatty liver disease (NAFLD) (1). Hypertension is a prognostic factor of severe liver outcomes and a predictor of nonspecific portal fibrosis (2). We aimed to assess the association between hypertension and NAFLD severity.

### METHODOLOGY

We performed a cross-sectional analysis of secondary data from adults with obesity and NAFLD who attended a Peruvian bariatric center between 2017-2020. NAFLD severity was evaluated using the Fatty Liver Inhibition of Progression/Steatosis, Activity and Fibrosis algorithm. Hypertension was defined if it was stated in the medical record or if the patient had a mean systolic pressure  $\geq 140$  mmHg or diastolic pressure  $\geq 90$  mmHg. To evaluate the association between hypertension and NAFLD severity, crude and adjusted prevalence ratios (aPR) were calculated using generalized linear models with Poisson family, logarithmic link function, and robust variances. For the multivariable models, we adjusted for sex, age, physical activity, and smoking.

### RESULTS

We included a total of 234 participants. The prevalence of hypertension was 19.2%, while the prevalence of severe NAFLD was 46.2%. In the adjusted model, the prevalence of hypertension was significantly higher in the severe NAFLD group than in the non-severe group (aPR = 1.33; 95% CI: 1.03-1.74). Stratified by metabolic syndrome and adjusted for confounders, the association became significant only in the non-metabolic syndrome group (aPR = 1.80; 95% CI: 1.05 - 3.11)

**Table 1.** Association between hypertension and severe NAFLD

Exposure: Hypertension	Bivariate analysis			Multiple regression		
	cPR	95% CI	p	aPR	95% CI	p
All the sample						
No hypertension	Ref.			Ref.		
With hypertension	1.37	1.08 - 1.75	0.011	1.33*	1.03 - 1.74	0.030
Without metabolic syndrome						
No hypertension	Ref.			Ref.		
With hypertension	1.86	1.16 - 2.97	0.010	1.80†	1.05 - 3.11	0.033
With metabolic syndrome						
No hypertension	Ref.			Ref.		
With hypertension	1.13	0.85 - 1.49	0.403	1.15†	0.84 - 1.57	0.378

\*Adjusted for gender, age, physical activity, and smoking,  
†Adjusted for sex, age, physical activity, and smoking status  
PR: Prevalence ratio. 95% CI: 95% Confidence interval

### DISCUSSION

NAFLD patients are at risk of developing hypertension and may be vice versa (3,4). Prior studies have reported an association between hypertension and NAFLD (5), but we did not find studies linking hypertension and NAFLD severity. Some studies, shown antihypertensive drugs improves hepatic fibrosis (6). Further studies are needed to assess the impact of NAFLD severity, and the effect of control hypertension to improve NAFLD.

### CONCLUSION

**Our study in adults with obesity and NAFLD from a private bariatric center showed an association between hypertension and severe NAFLD.**

### REFERENCES

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