

# Idiopathic Thrombocytopenic Purpura Correlates with Lower Rate of Acute ST Elevation Myocardial Infarction



THE UNIVERSITY OF ARIZONA  
**College of Medicine**  
Phoenix

Mitchell Davis;<sup>1</sup> Mohammad Reza Movahed, MD. Ph.D; <sup>1,2</sup> Mehrtash Hashemzadeh;<sup>4</sup>  
Mehrnoosh Hashemzadeh, Ph.D<sup>1,3</sup> ; <sup>1</sup>University of Arizona, College of Medicine  
Phoenix, AZ; <sup>2</sup>CareMore, Tucson, AZ; <sup>3</sup>Pima Community College, Tucson, AZ; <sup>4</sup>Long  
Beach VA Healthcare Systems

## Introduction

Platelets play a major role in the pathogenesis of myocardial infarction (MI). In order to study the role of platelet count in MI, we hypothesize that patients with acquired thrombocytopenia such as idiopathic thrombocytopenic purpura (ITP) may have lower risk of MI. Using a large database, we studied any correlation between the presence of ITP and ST Elevation Myocardial Infarction (STEMI).

## Research Question

In patients with idiopathic thrombocytopenic purpura, is there a decreased risk of ST elevation myocardial infarction compared to the those without ITP?

## Materials and Methods

The Nationwide Inpatient Sample (NIS) was used for this study. Using the available NIS database from the years 2001-2011, we analyzed the correlation between STEMI and ITP utilizing International Classification of Diseases, ninth revision, and Clinical Modification (ICD-9-CM) ICD-9 codes. We used uni- and multivariate analysis adjusting for risk factors.

## Results

Between the years of 2002 and 2011, we were able to observe significant differences between the patients with ITP and those without. We found that the risk of STEMI is significantly reduced in patients with ITP in uni- and multivariate analysis in every year of the 10-year period. For example, we found that in 2002 STEMI occurred in 0.09% of patients with ITP vs. 0.13% without ITP ( $p < 0.007$ ). Then in another example in 2011, the same percentage of ITP patients experienced STEMI with a prevalence of 0.09% vs. 0.15 in patients without ITP ( $p < 0.005$ ). This reduction remains significant after multivariate adjustment

The statistical analysis should report both p-values and intensity of any differences noted; e.g., measures of effect such as Odds Ratios, Relative Risk, Correlation Coefficient or 95% Confidence Intervals.

## Conclusion

Based on our large database, the presence of ITP appears to be associated with a lower risk of STEMI. This finding suggests that platelet counts play important role in the pathogenesis of STEMI and low platelet count may exert protective effect from STEMI.

## Summary

- ITP appears to be associated with a lower risk of STEMI
- A low platelet count may exert a protective effect from STEMI.

## Acknowledgements

I wish to thank my mentor Dr. Mehrnoosh Hashemzadeh as well as Mehrtash Hashemzadeh and Dr. Movahed. I would also like to thank Dr. Dr. Matthew McEchron for his support

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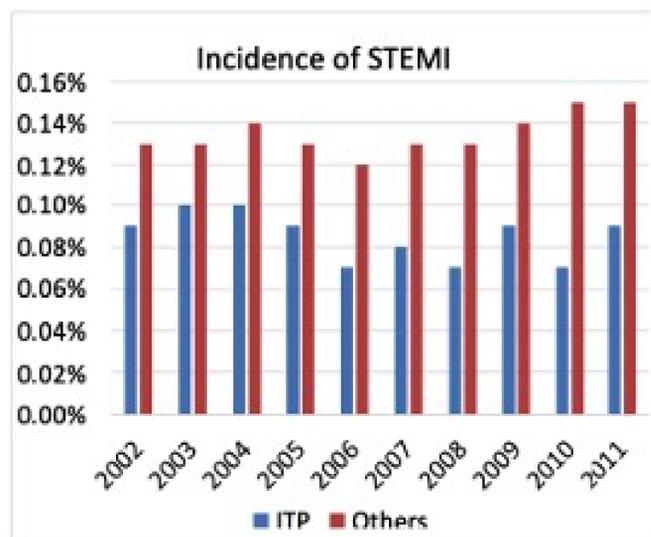


Figure 1. Incidence of STEMI over a 10- year period in patients with ITP vs without ITP

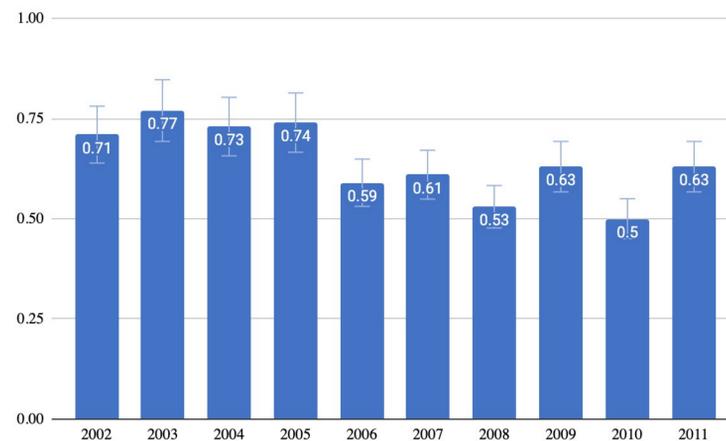


Figure 2: Odds ratio of STEMI with ITP compared with patients without ITP over a 10-year period (calculated from univariate analysis).

	2002		2011	
	ITP	Non-ITP	ITP	Non-ITP
Age N(Mean±SD)	63 (67.44 ± 12.34)	69786 (65.49 ± 14.44)	37 (64.43 ± 15.75)	38772 (63.69 ± 14.02)
Gender %				
Male	1.07%	1.37%	0.43%	0.78%
Female	0.56%	0.56%	0.21%	0.27%
Race %				
White	0.66%	1.02%	0.27%	0.55%
Black	0.24%	0.44%	0.29%	0.27%
Hispanic	0.49%	0.47%	0.23%	0.31%
Asian/Pac Isl	0.00%	0.64%	0.74%	0.49%
Native-American	0.74%	0.79%	0.00%	0.31%
Others			0.46%	0.55%
Diabetes %	0.70%	1.39%	0.41%	0.65%
Hypertension %	1.02%	1.49%	0.39%	0.79%
Hyperlipidemia %	2.53%	3.04%	0.82%	1.22%
Smoking %	1.51%	2.51%	0.61%	1.10%

Table 1. Demographic information and prevalence of comorbid conditions for patients with STEMI in the years 2002 (left) and 2011 (right)

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