The Impact of Hypertriglyceridemia on Clinical Outcome of Patients Subjected to Percutaneous Coronary Intervention in the Presence of High and Low High-density Lipoprotein Cholesterol

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Objective

The objective of this analysis was to investigate the effect of triglyceride levels in the presence of high and low levels of HDL cholesterol on clinical outcomes of patients undergoing contemporary percutaneous coronary intervention.

Trial Design

Non-emergent PCI and ≥ 12 months follow up
n = 4391

Normal Triglycerides
<200 mg/dL
n = 3659

High Triglycerides
≥200mg/dL
n = 732

Low HDL
<40 mg/dL males
<45 mg/dL females
n = 1749

High HDL
≥40 mg/dL males
≥45 mg/dL females
n = 1910

Low HDL
<40 mg/dL males
<45 mg/dL females
n = 562

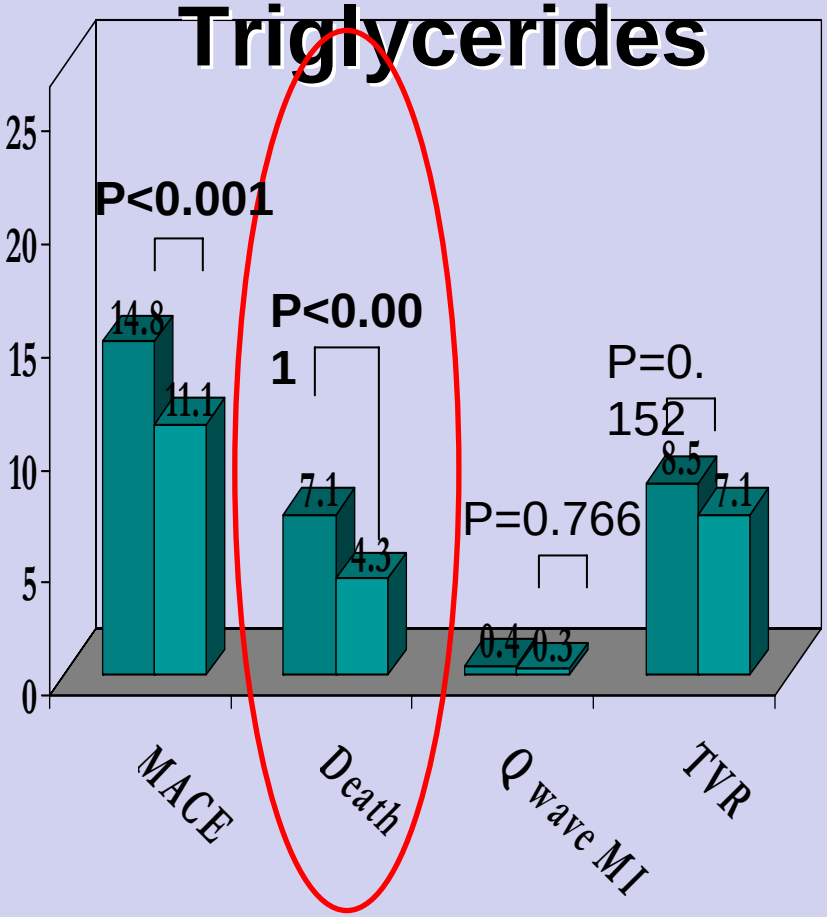
High HDL
≥40 mg/dL males
≥45 mg/dL females
n = 170

In-Hospital Complications

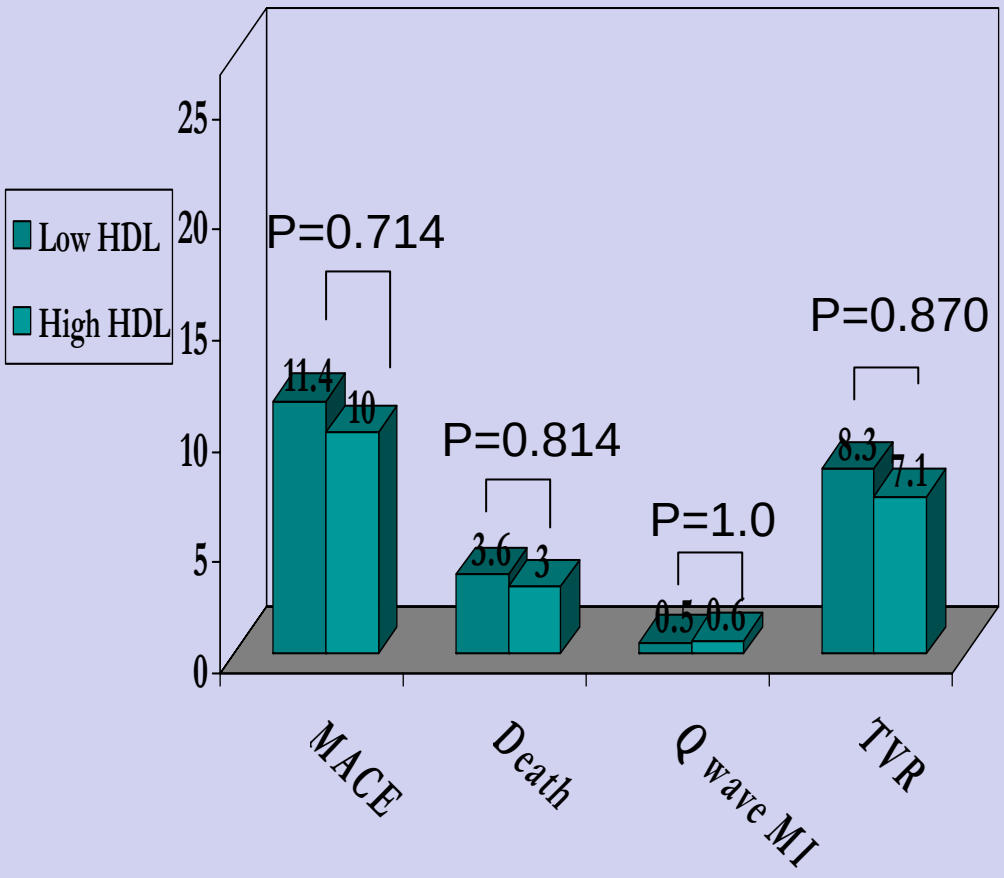
%	Normal Triglycerides		High Triglycerides		p Value
	Low HDL n=1749	High HDL n=1910	Low HDL n=562	High HDL n=170	
Angiographic Success	**98.1**	**98.0**	**97.5**	**97.1**	**0.539**
Length of Stay	**2.9 ± 4.1**	**2.2 ± 2.7**	**2.3 ± 2.6**	**2.0 ± 1.7**	**<0.001**
Dissection	**1.3**	**0.5**	**0.2**	**0.9**	**0.160**
Abrupt Closure	**1.0**	**0.8**	**0.6**	**1.1**	**0.873**
No Reflow	**0.4**	**0.8**	**0.4**	**0.2**	**0.547**
Death	**0.0**	**0.0**	**0.2**	**0.2**	**1.00**
Q-wave MI	**0.7**	**0.6**	**1.0**	**0.8**	**0.935**
Repeat TLR	**1.6**	**2.0**	**1.4**	**1.5**	**0.924**
Major bleeding	**2.7**	**1.6**	**1.4**	**2.7**	**0.393**
Stent thrombosis	**0.4**	**0.4**	**0.3**	**0.5**	**1.00**

12 Month MACE

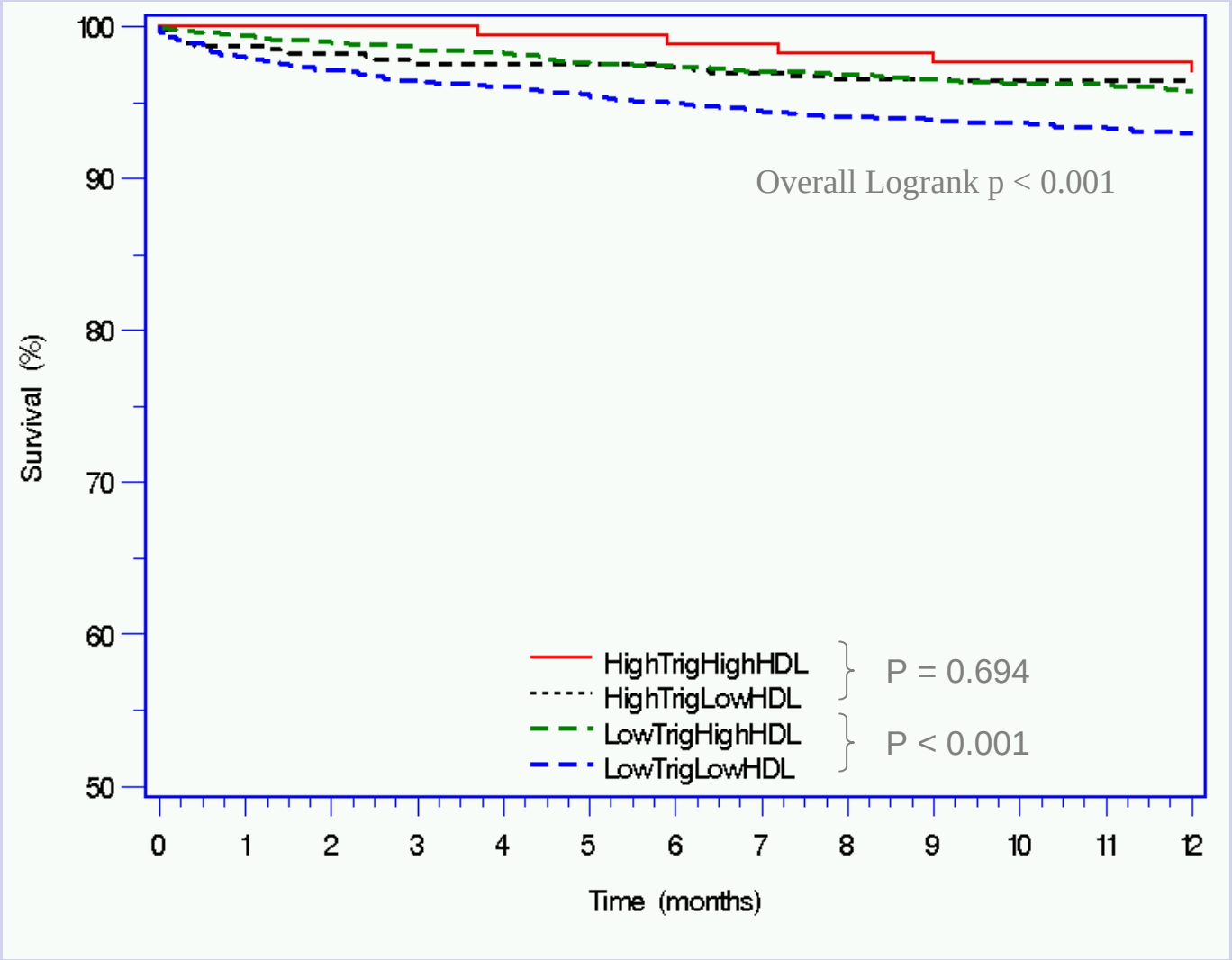
Normal Triglycerides



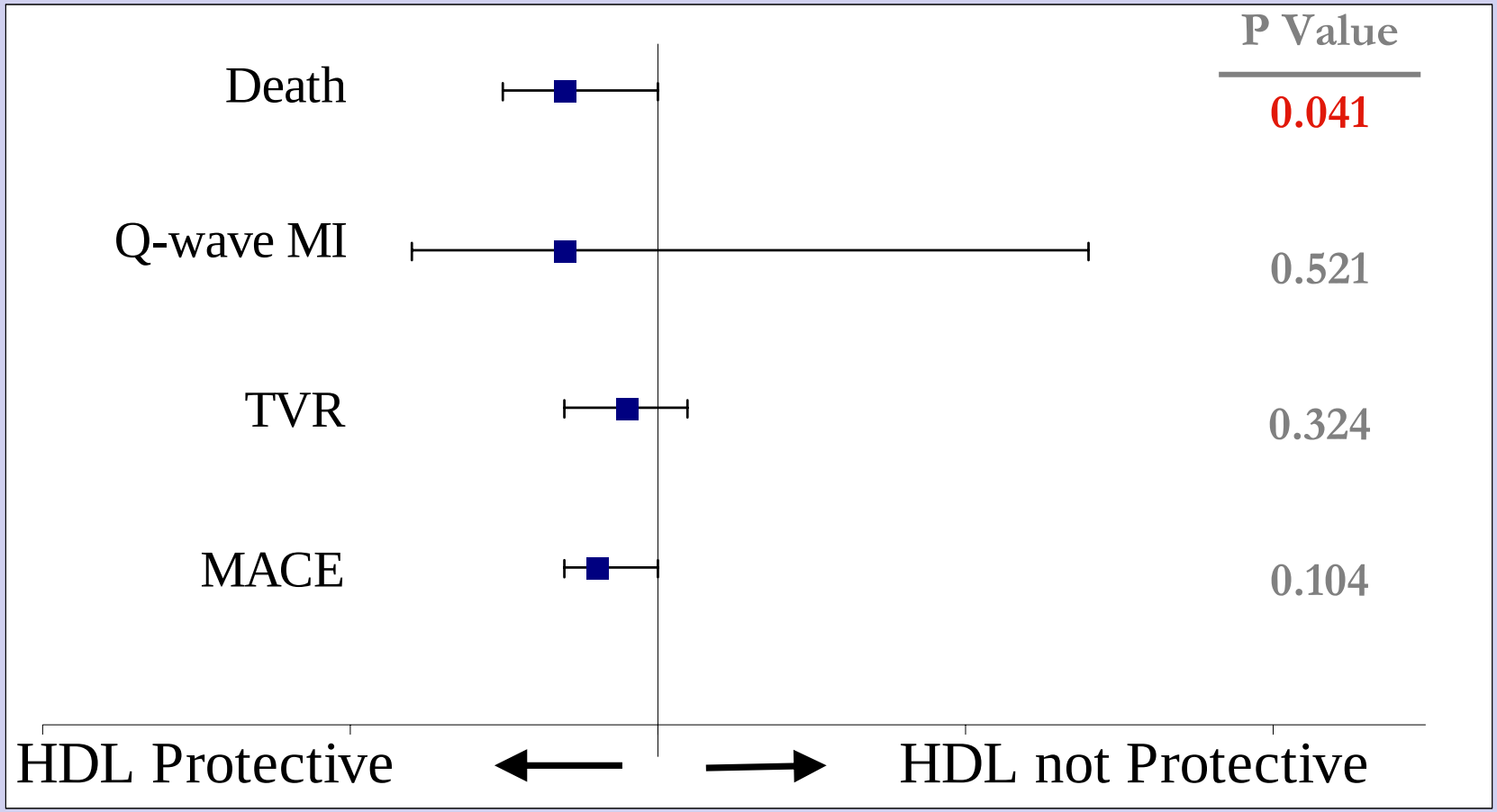
High Triglycerides



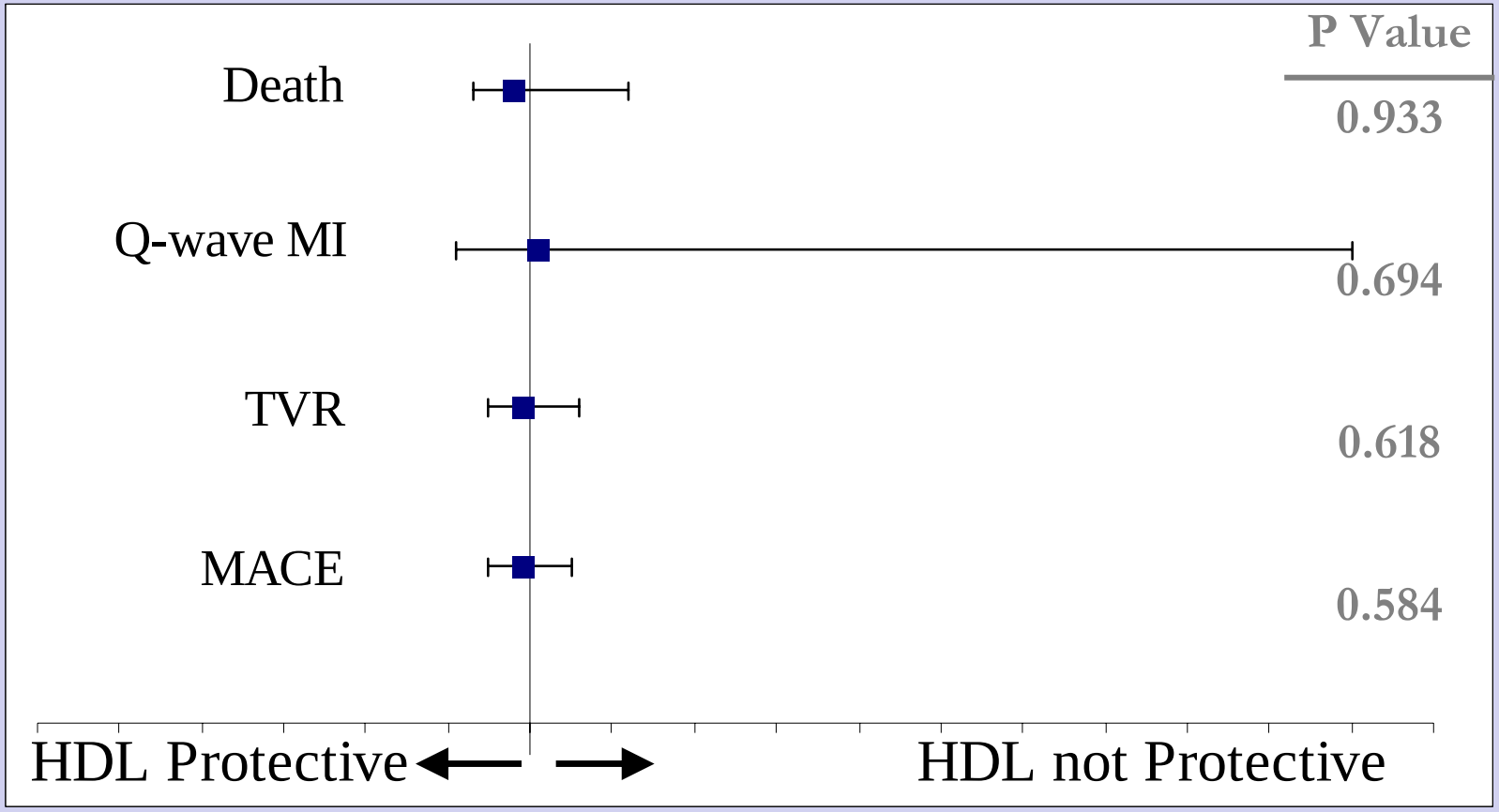
K-M Curve for 12 month Death



Adjusted Hazard Ratios the Normal Triglyceride Group



Unadjusted Hazard Ratios High Triglyceride Group



Independent Predictors of Death within 12 months

Normal Triglycerides			
	Hazard Ratio	**95% CI**	**P value**
Age	**1.0**	**1.0-1.1**	**<0.001**
Diabetes Mellitus	**1.8**	**1.3-2.4**	**<0.001**
History of Chronic Renal Insufficiency	**2.7**	**1.9-3.6**	**<0.001**
History of CHF	**2.9**	**2.1-3.9**	**<0.001**
High HDL	**0.7**	**0.5-1.0**	**0.041**

High Triglyceride Sub Analysis

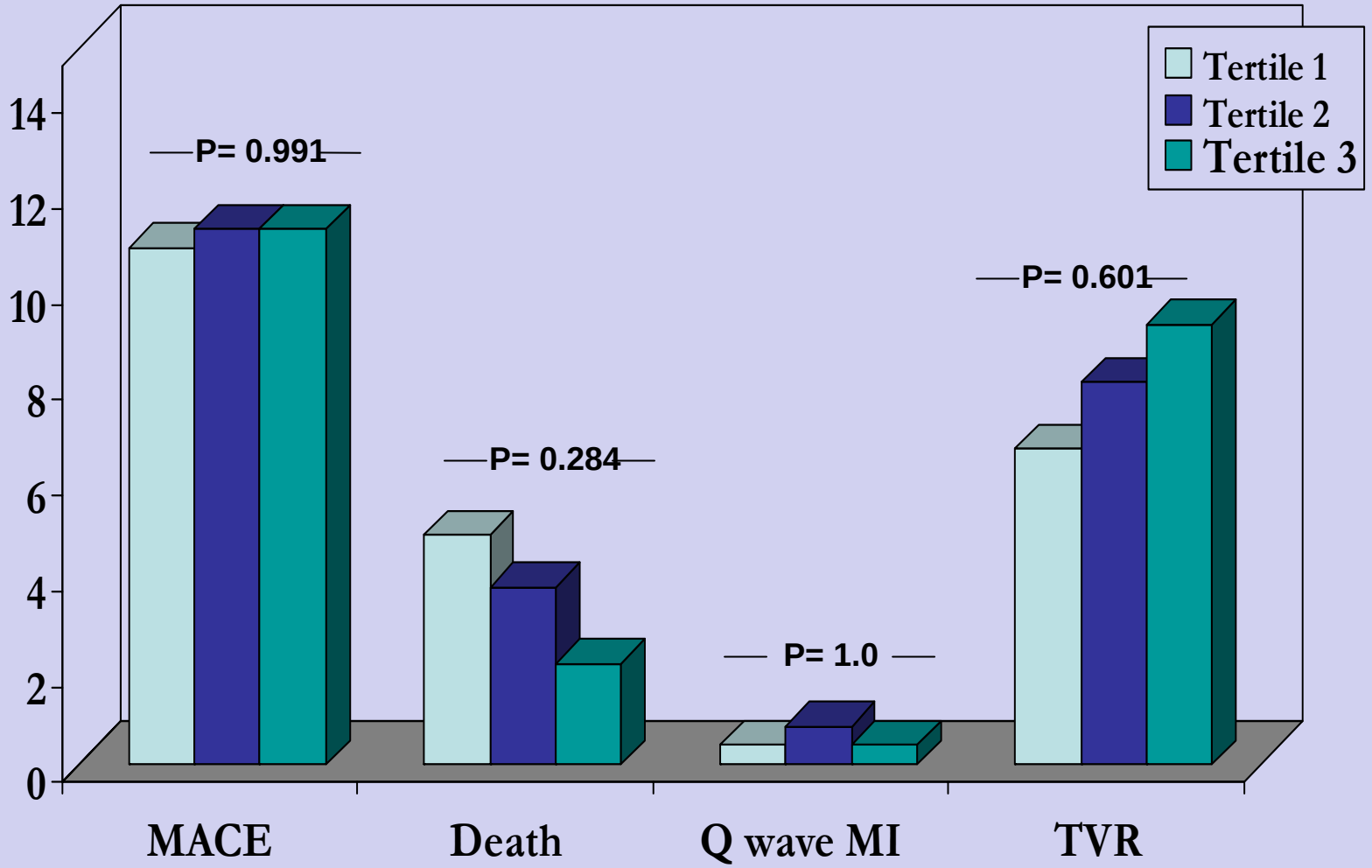
High Triglycerides
≥200mg/dL

Tertile 1
Non-HDL
0-133 mg/dL
n = 231

Tertile 2
Non-HDL
133-168 mg/dL
n = 242

Tertile 3
Non-HDL
>168 mg/dL
n = 242

12 Month MACE



Summary

After adjustment for baseline inconsistencies elevated HDL cholesterol remained protective against death at 1 year in patients with normal triglyceride levels.

However, elevated HDL cholesterol did not demonstrate any added benefit to patient with elevated triglycerides. Overall the death and MACE rates were relatively low in this population.

Within the elevated triglyceride group the patients within the highest tertile of non-HDL cholesterol did not experience worse outcomes at 1 year as compared to patients in the lower two tertiles.

Conclusions

The present study demonstrated that high HDL levels are protective against mortality within 1 year following contemporary, elective PCI in patients with normal triglycerides; however, does not demonstrate any additional benefit when patients have elevated triglycerides.

Therapies targeted at raising HDL levels may give additional therapeutic benefit in patients with normal triglyceride levels presenting for PCI in the drug eluting stent era.