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Association between multiple cardiovascular comorbidities and the prevalence of Heart attack among peripheral arterial disease patients in rural Central Appalachia.

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Association between multiple cardiovascular comorbidities and the prevalence of myocardial infarction among patients with peripheral arterial disease in rural central Appalachia.

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Background

- In the United States (U.S), heart disease accounts for about 610 000 deaths annually. Myocardial infarction(MI) contributes more than half of this burden. Every 40seconds someone in the U.S experiences heart attack.
- Approximately 8.5 million people in the U.S have peripheral arterial disease(PAD)
- Rural central Appalachia has a significantly increased burden, 27% higher than that of the metro counties.
- Studies have shown that MI often occurs with a background of several cardiovascular comorbidities and risk factors, most of which are preventable. Example include, hypertension, diabetes, dyslipidemia, PAD, obesity, smoking etc..
- Notably research is limited in the role these other CVD risk play in the propagation MI in PAD patients.

Purpose

- To explore the association between diabetes mellitus, hypertension and dyslipidemia and the prevalence of myocardial infarction among patients with PAD.

Methods

- Study Population**
 - 13455 subjects with PAD were recruited using ICD-9 and 10 search terms for PAD from the EMR system between Jan 1, 2008 and April 30, 2018.
- Outcome:**
 - History of M.I, categorized into presence or absence of the disease.
- predictors**
 - They include various risk factors for MI: age, body mass index, lipid status, gender, hypertension and diabetes.
- Statistical analysis**
 - Descriptive analysis of CVD risk factors was done.
 - Multivariable logistic regression was used to estimate the association between CVD comorbidities and Myocardial infarction

Results

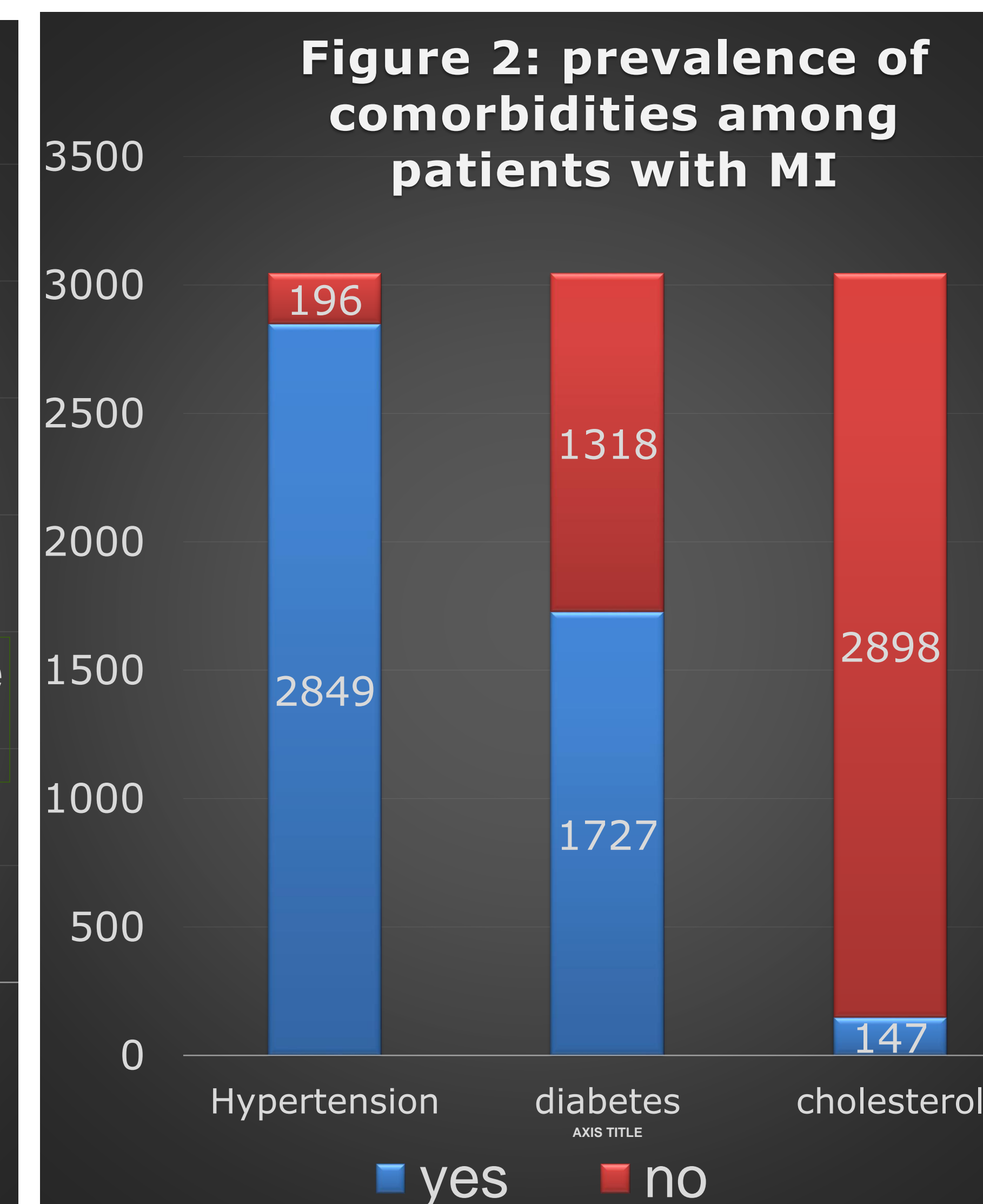
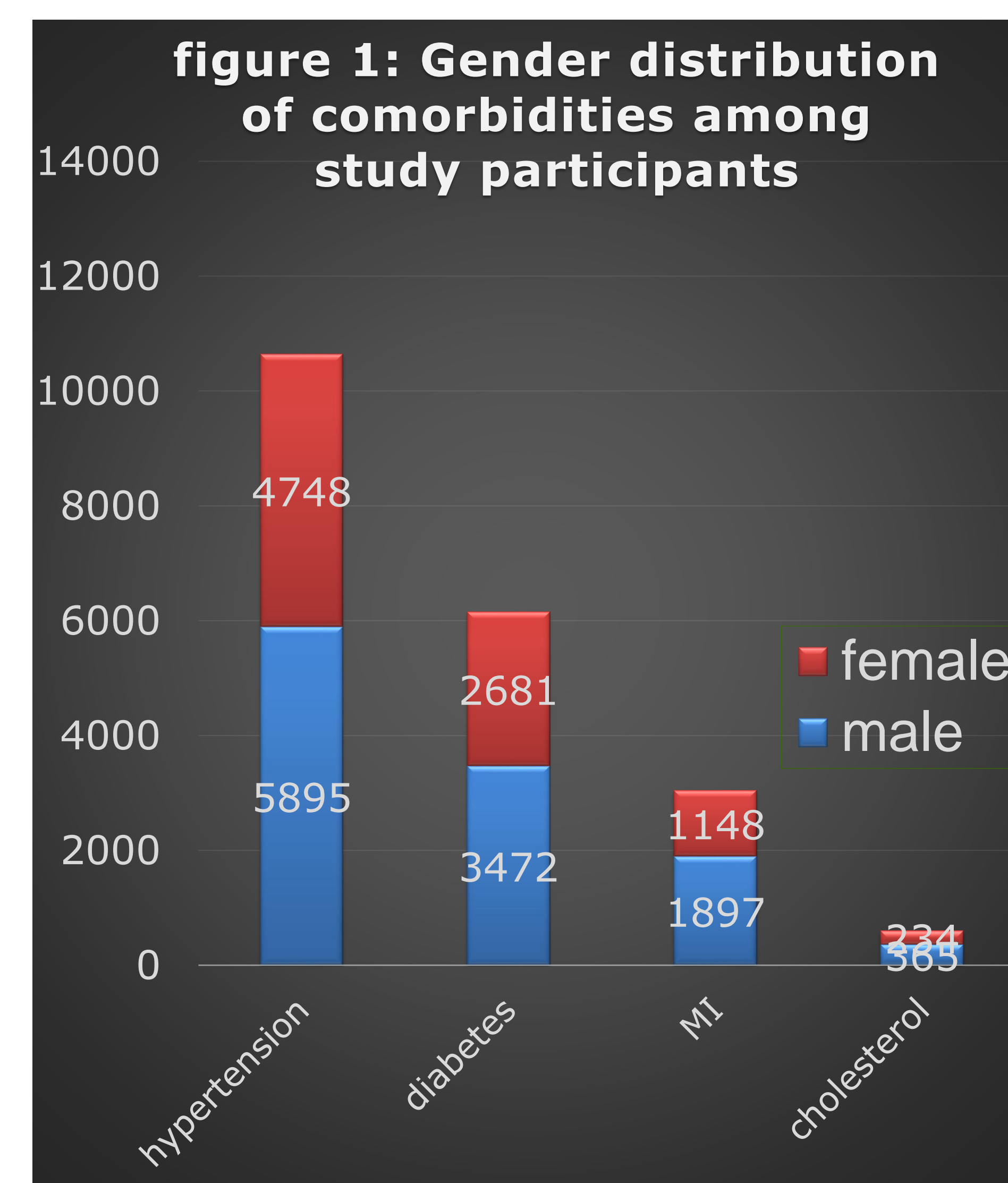


Table 1: Association between CVD risk factors with history of myocardial infarction : stratified by Male gender N=13455

Predictors	Odd ratio	P-value	95% C.I for OR	
Age	1.000	0.988	0.987	1.013
BMI	1.008	0.508	0.985	1.031
LDL	0.996	0.631	0.980	1.013
HDL	0.967	0.001	0.949	0.986
Cholesterol	1.000	0.951	0.984	1.015
Triglyceride	1.000	0.760	0.997	1.002
Diabetes	1.138	0.345	0.870	1.489
Hypertensi on	3.690	0.003	1.559	8.736

* p-value < 0.05.

Table 2: Association between CVD risk factors with history of myocardial infarction : stratified by Female gender N=13455

Predictors	Odd ratio	P-value	95% C.I for OR	
Age	0.997	0.674	0.981	1.012
BMI	0.962	0.003	0.938	0.987
LDL	1.012	0.335	0.987	1.0038
HDL	0.988	0.373	0.963	1.014
Cholesterol	0.984	0.183	0.961	1.008
Triglyceride	1.002	0.424	0.998	1.006
Diabetes	1.858	0.001	1.308	2.638
Hypertensi on	4.508	0.005	1.576	12.895

Discussion & Conclusions

- Prevalence of MI, diabetes, hypertension and hypercholesterolemia is higher in males than females.
- MI have higher likelihood of occurrence among hypertensives compared to non-hypertensives across both gender. Same applies to diabetes both only significant in the female gender.
- Findings underscores the importance of proactive screening aimed at prevention and control of Diabetes and Hypertension among PAD patients which are known to worsen the outcome if not addressed.
- Efforts should be geared at understanding the male dominance in risk factors in the region and mitigating measures should be explored.

Acknowledgement

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