

**Correlation Between Severity Of Coronary
Artery Disease And Glycosylated
Hemoglobin levels In Patients Without
History Of Diabetes Mellitus Sent For
Elective Coronary Angiography**

Thesis

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cardiology*

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LIST OF CONTENTS

List of abbreviations	I
List of tables	IV
List of figures	V
Introduction	1
Aim of the work	3
Review of literature	
• <i>Chapter 1:</i> Parameters for diagnosis and assessment of diabetes mellitus	4
• <i>Chapter 2:</i> Risk factors of coronary artery disease	24
• <i>Chapter 3:</i> Glycated Hemoglobin Level and cardiovascular disease	48
Methodology	60
Master table	66
Results	69
Discussion	87
Conclusion and Recommendations	97
Summary	98
References	101
Arabic Summary	

LIST OF ABBREVIATIONS

Abbreviation	Meaning
1, 5-AG	1, 5-Anhydroglucitol
2-h OGTT	2 hours oral glucose tolerance test
ACS	Acute coronary syndrome
ADA	American diabetic association
ADAG	A1C-Derived Average Glucose
AGE	Advanced glycation end products
ALL	Average length lesion
ARIC	Atherosclerosis Risk in Communities
AUC	Area under the curve
AVD	Average vessel diameter
BMI	Body Mass Index
BP	Blood pressure
CABG	Coronary artery bypass grafting
CAD	Coronary artery disease
CCC	Calculated creatinine clearance
CGM	Continuous glucose monitoring
CHD	Coronary heart disease
CI	Confidence interval
CKD	Chronic kidney disease
CrCl	Creatinine Clearance
CVD	Cardiovascular Disease
DBP	Diastolic blood pressure
DCCT	Diabetes Control and Complications Trial
DD	Discovered diabetic
DM	Diabetes mellitus
eAG	estimated average glucose
EASD	European association for the study of diabetes
ECG	Electrocardiogram
EDEG	European Diabetes Epidemiology Group
EEM	External elastic membrane
FBS	Fasting blood sugar

Abbreviation	Meaning
FDR	First degree relative
FPG	Fasting plasma glucose
GFR	Glomerular filtration rate
GS	Gensini score
HbA1c	Glycosylated hemoglobin
HbF	Fetal hemoglobin
HbS	Hemoglobin S
HDL	High-density lipoprotein
HS	Highly significant
hs-CRP	high sensitivity C-reactive protein
HTN	Hypertension
IDF	International diabetes federation
IDL	Intermediate-density lipoprotein
IFG	Impaired fasting glucose
IGT	Impaired glucose tolerance
IMT	Intima media thickness
JNC	Joint of National Committee
LAD	Left anterior descending artery
LCX	Left circumflex artery
LDL	Low-density lipoprotein
LV	Left ventricle
MDCT	Multidetector computed tomography
MI	Myocardial infarction
MRI	Magnetic resonance imaging
MVD	Multivessel disease
ND	Non-diabetic
NDDG	National Diabetes Data Group
NDR	National Diabetes Register
NGSP	National Glycohemoglobin Standardization Program
NHANES	National Health and Nutrition Examination Survey
NS	Non-significant
NWAHS	North West Adelaide Health Study
OGTT	Oral glucose tolerance test

Abbreviation	Meaning
OHAs	Oral hypoglycemic agents
OR	Odds ratio
P	Predictive value
PCI	Percutaneous coronary intervention
PD	Pre-diabetic
PWV	Pulse wave velocity
RCA	Right coronary artery
ROC	Receiver-operating characteristic
RR	Remodeling ratio
S	Significant
SBP	Systolic blood pressure
SD	Standard deviation
SDR	Second degree relative.
SPSS	Statistical Package for the Social Sciences
SYNTAX	SYNergy between PCI with TAXUS™ and Cardiac Surgery
TC	Total Cholesterol
TG	Triglycerides
UKPDS	UK Prospective Diabetes Study
VLDL	Vry-low-density lipoprotein
Vs	versus
WHO	World health Organization

LIST OF TABLES

Table number	Title	Page number
1	Classification of Body Mass Index and Risk of Comorbidities	26
2	Proportion of first coronary events as myocardial infarction and angina pectoris Framingham study subjects ages 35 to 94	31
3	Biological mechanisms for benefit of exercise	35
4	Risks for common diseases	36
5	Odd Ratios for Plaque According to HbA1c Levels	56
6	Classification of diabetics, pre-diabetics and non-diabetics	63
7	Classification of obesity	63
8	Baseline clinical characteristics of the whole study participants	70
9	Baseline laboratory and angiographic characteristics of the whole study participants	71
10	Demographic and clinical characteristic of the study groups	73
11	Comparison between the study groups as regards laboratory data	74
12	Comparison between the study groups as regards GS	77
13	Correlation between HbA1c and different variables	78
14	Correlation between GS versus different variables among whole study population	82
15	Correlation between GS versus smoking, gender and HTN among whole study population	85

LIST OF FIGURES

Figure number	Title	Page number
1	Strict glycemic control prevents microalbuminuria in patients with type 1 diabetes mellitus	11
2	Relation between diabetic retinopathy and glycemic control	12
3	Patterns of blood glucose control	13
4	Cross-section of a human coronary artery	39
5	Longitudinal sections through vessel segments	40
6	Adjusted Hazard Ratios for Self-Reported Diagnosed Diabetes and CHD	53
7	Relation of HbA1c to Rate of Major Adverse Cardiac Events in ND Patients in Percutaneous Coronary Revascularization	54
8	The whole study population	69
9	Prevalence of the conventional risk factors of the whole study participants	70
10	The significant difference between the study groups as regards the different variables of lipid profile	75
11	The significant difference between the study groups as regards HbA1c	76
12	The significant difference between the study groups as regards FBS	76
13	The significant difference between the study groups as regards GS	77
14	The significant correlation between HbA1c and GS	79
15	The significant correlation between HbA1c and BMI	79
16	The significant correlation between HbA1c and LDL	80
17	The significant correlation between HbA1c and TG	80
18	The significant correlation between HbA1c and Total cholesterol	81

Figure number	Title	Page number
19	The negative correlation between HbA1c and HDL	81
20	The significant correlation between GS and FBS	83
21	The significant correlation between GS and BMI	83
22	The significant inverse correlation between GS and HDL	84
23	comparison between hypertensive and non-hypertensive patients, smokers and non- smoker patients as regard GS	85
24	ROC curve for predicting severe CAD	86

Introduction



INTRODUCTION

Diabetes mellitus (DM) is a risk factor for the development of coronary heart disease (CHD), and individuals with DM have more extensive atherosclerosis, more cardiac events, and higher prevalence of silent ischemia as compared with individuals without DM ¹.

For decades, the diagnosis of diabetes was based on plasma glucose criteria, either fasting plasma glucose (FPG) or 2-hour value in the 75 g oral glucose tolerance (OGTT) ², In 2009, an international expert committee that included representatives of American diabetic association (ADA), the international diabetes federation (IDF) and the European association for the study of diabetes (EASD) recommended the use of A1c test to diagnose diabetes, with threshold of 6.5 % ³ and the ADA adopted this criterion in 2010.

Glycated hemoglobin, assessed clinically by hemoglobin A1C, is a time integrated marker of average blood glucose concentration increasingly used in the screening and management of diabetes, and it is more closely related to the risk of complications than are single or episodic measures of glucose levels ⁴. There is consistent evidence that HbA1c levels control results in lower incidence of microvascular and macrovascular complications in both type 1 and type 2 DM ⁵.

Currently, the degree to which mild elevations of HbA1c not in the diabetic range are associated with risk of coronary heart disease (CHD) is unclear. The association between dysglycemia and CAD may

start at levels that are only modestly elevated, well below the glucose threshold for diabetes ⁶.

In several studies, they attempted to extend the role of HbA1c as an indicator of cardiovascular risk assessment in people without diabetes. Some have shown HbA1c to be predictor of future cardiovascular events in the general population ⁷, while others have found no association ⁸ or association only in women ⁹. In addition, few studies have examined the association between HbA1c and coronary artery lesion morphology.

Gensini suggested a scoring system, which allocates a numerical value for the degree of stenosis in a coronary artery, and this provides a detailed assessment of CAD and does not ignore even very trivial lesions in coronary arteries ¹⁰.

Aim of the work



AIM OF THE WORK

The aim of this work was to assess the correlation between coronary artery disease severity and complexity (as assessed by Gensini score) and the glycosylated hemoglobin level in patients not previously known to be diabetics and sent for elective coronary angiography.