

THESIS

**THE COMPARARISON OF THE LIPID PROFILE BETWEEN
AMPUTATED AND NON- AMPUTATED DIABETIC FOOT ULCER
PATIENTS IN DOCTOR SEOTOMO HOSPITAL DURING 2019-2020**



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FACULTY OF MEDICINE

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SURABAYA

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Thesis

This Is To Fulfil The Requirement Of The Research Module

Faculty Of Medicine Airlangga University

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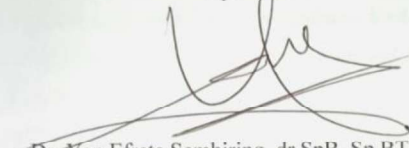
iii

APPROVAL SHEET

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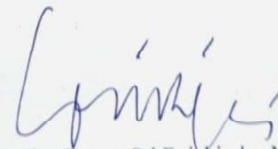
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Surabaya, 30 September 2022

Ahmed Eliaan Shaker Abuajwa

SUMMARY

Diabetes mellitus is a group of metabolic disorders characterized and identified by the presence of hyperglycaemia in the absence of treatment. DFU is one of the most prevalent diabetic complications. Amputation is 10 to 20 times more common in diabetics than in non-diabetics, and it is estimated that a lower leg is amputated partially or completely every 30 seconds around the world. One of the efforts in the health sector to reduce the number of lower extremity amputations is through knowing the risk factors of DFU patients. Many studies have linked dyslipidaemia to the risk of diabetes mellitus. However, there is a paucity of recent research linking the lipid profile of a diabetic foot ulcer to the risk of amputation. Hence, this research intends to analyse and find the lipid profile in amputated and non-amputated DFU patients at Doctor Soetomo General Hospital, Surabaya, from January 2019 to December 2020.

This study is a cross-sectional retrospective study that reviews medical records of all diabetic patients with or without amputation who were admitted into Dr. Soetomo General Hospital in the period from January 2019 to December 2020. Total consecutive sampling was conducted from medical records of inward patients with DFU patients from January 2019 to December 2020. The medical records obtained were selected by meeting the inclusion and exclusion criteria. A total of 202 samples were obtained. This research analysed patients' demographics and laboratory results. The research has obtained ethical clearance and approval

from the committee of ethics of Doctor Soetomo General Hospital and has implemented the ethical principles. The data was analysed by the Mann-Whitney U test. All data was collected using Microsoft Excel 2016 software and analysed using IBM SPSS Statistics Version 26 with a significance value of $p < 0.05$.

The results showed Amputated DFU patients had greater mean total cholesterol, TG, LDL, and HDL than non-amputated DFU patients, but the difference was not significant statistically. The HDL level was low in 84% of amputated DFU patients, while in non-amputated DFU patients it was 81%.

Based on the study's results, it was found that the DFU more prevalent in age more than 50 years old. No difference in total cholesterol, TG, LDL and HDL between amputated and non-amputated DFU patients. The HDL level was low in both amputated and non-amputated DFU patients.

We propose that the treatment of DFU patients by clinician is a comprehensive procedure with an emphasis on maintaining the blood's normal glucose level, preventing infections, and beginning the treatment to raise HDL levels in patients with DFU.

Abstract

BACKGROUND: Diabetic Foot Ulcer (DFU) are microvascular and macrovascular complications from diabetes and has potential pathological risks including neuropathy, vasculopathy, and immunological suppression. Increased blood glucose levels can cause glycosylation proteins in nerve cells in the foot, resulting in ischemia and cellular disruptions that can damage motor, sensory, and autonomic neurons. Diabetic patients with lipid abnormalities usually termed “diabetic dyslipidemia”, are characterized by high total cholesterol (T Chol), high triglycerides (TG), low high density lipoprotein cholesterol (HDL-C) and increased levels of small dense LDL particles.

OBJECTIVE: To analyse the difference of lipid profile between the amputated and non-amputated DFU patients.

METHOD: This study is a cross-sectional retrospective study that reviews medical records of all diabetic patients with or without amputation that was admitted into Dr. Soetomo General Hospital in the period from January 2019 to December 2020.

RESULT: In Dr. Soetomo General Hospital the mean age of DFU patients was 55.6 ± 9.4 and the female slightly higher than male representing (57%). Among these DFU patients, more female patients (60%) than male patients (40%) had amputations. Diabetic foot ulcers were most prevalent in the age group ≥ 50 years old (74%), and least prevalent in the age group < 50 years old (26%). Amputated DFU patients had greater mean total cholesterol, TG, LDL, and HDL than non-amputated DFU patients, but the difference was not significant statistically. The HDL level was low in 84% of amputated DFU patients, while in non-amputated DFU patients it was 81%.

CONCLUSION: DFU more prevalent in age more than 50 years old. No difference in total cholesterol, TG, LDL and HDL between amputated and non-amputated DFU patients. The HDL level was low in both amputated and non-amputated DFU patients.

Keywords: diabetic foot ulcer, lipid profile, amputation, HDL

TABLE OF CONTENTS

FRONT COVER.....	i
INSIDE COVER.....	ii
DEGREE REQUIREMENTS.....	iii
APPROVAL SHEET.....	iv
ACKNOWLEDGMENT	v
SUMMERY	vi
ABSTRACT	viii
TABLE OF CONTENT.....	ix
LIST OF TABLES	xii
LIST OF FIGURES	xiii
LIST OF ATTACHMENTS	xiv
ABBREVIATIONS	xv
 CHAPTER I INTRODUCTION.....	 1
1.1 Background.....	1
1.2 Problem formulation.....	5
1.3 Objectives of research.....	5
1.3.1 General objectives.....	5
1.3.2 Specific objectives	5
1.4 Benefits of research	6
1.4.1 Theoretical Benefit	6
1.4.2 Practical Benefit.....	6
 CHAPTER II LITTERATURE REVIEW	 7
2.1 Diabetes Mellitus	7
2.1.1 Definition.....	7
2.1.2 Diagnosis	7
2.1.3 Classification	9
2.1.4 Risk factors	12
2.1.5 Complications	13
2.2 Diabetic Foot Ulcer.....	15
2.2.1 Definition	15
2.2.2 Pathophysiology.....	16

2.2.3 Classification	17
2.2.4 Risk Factor	17
2.2.5 Management.....	17
2.3 Dyslipidemia in diabetes mellitus.....	19
2.3.1 Definition	19
2.3.2 Total cholesterol	20
2.3.3 LDL cholesterol	20
2.3.4 HDL cholesterol.....	20
2.3.5 Triglyceride.....	21
2.4 Association of lipid profile and DFU	23
2.4.1 The relation of lipid profile with the atherosclerosis.....	23
2.4.2 The relation between atherosclerosis and DFU	23
2.4.3 The relation of lipid profile with DFU.....	24
2.4.4 The relation of lipid profile with the amputation.....	25
CHAPTER III CONCEPTUAL FRAMEWORK.....	27
3.1 Conceptual Framework.....	27
3.2 Explanation of Conceptual Framework	28
3.3 Early hypothesis.....	29
CHAPTER IV METHODOLOGY	30
4.1 Research design	30
4.2 Population and sample	30
Sample size	30
Sampling technique	30
4.3 Criteria sample	
Inclusion Criteria	31
Exclusion Criteria	31
4.4 Variables	31
4.5 Operational definition.....	31
4.6 Research instrument.....	33
4.7 Time and location	33
4.8 Research procedure/ Data collection	33

4.9 Data processing.....	34
4.10 Research Flow	35
CHAPTER V RESULTS	36
5.1 Sample characteristic	36
5.2 Identification of the lipid profile parameters in amputated and non-amputated DFU	39
5.2.1 Identification of total cholesterol in amputated and non-amputated DFU.....	40
5.2.2 Identification of TG in amputated and non-amputated DFU	41
5.2.3 Identification of LDL in amputated and non-amputated DFU.....	42
5.2.4 Identification of HDL in amputated and non-amputated DFU.....	43
CHAPTER VI DISCUSSION	44
6.1 Age and Gender	44
6.2 Lipid profile in DFU patients	45
6.3 Limitations.....	50
CHAPTER VII CONCLUSION.....	51
7.1 Conclusion	51
7.2 Suggestions.....	52
REFERENCES	53
ATTACHMENT.....	60

LIST OF TABLES:

Table 2. 1. Composition and physicochemical properties of lipoproteins. (European society of cardiology	22
Table 4. 1. Operational variable definition	31
Table 5.1 Demographic variables among non-amputated and amputated DFU patients of Total	37
Table 5.2 Characteristic of lipid profile in all DFU patients	37
Table 5.3 the characteristics cholesterol in amputated and non-amputated DFU.....	40
Table 5.4 the range of Total cholesterol in amputated and non-amputated DFU.....	40
Table 5.5 the characteristics of TG in amputated and non- amputated DFU	41
Table 5.6 the range of TG in amputated and non-amputated DFU.....	41
Table 5.7 the characteristics of LDL in amputated and non- amputated DFU	42
Table 5.8 the range of LDL in amputated and non-amputated DFU.....	42
Table 5.9 the characteristics of HDL in amputated and non- amputated DFU	43
Table 5.10 the range of HDL in amputated and non- amputated DFU	43

LIST OF FIGURES:

Figure 4. 1. Research flow	35
Figure5.1 Mean values of lipid profile in non-amputated and amputated DFU patients.....	38
Figure 5.2 the status of DFU patients	39

List of Attachment

Attachment 1. Research Schedule Plan.....	60
Attachment 2. Research Budget.....	61
Attachment 3. Statement of Ability to Comply with Research Regulations.....	62
Attachment 4. Ethical Approval.....	63
Attachment 5. Permission for collecting data	64

LIST OF ABBREVIATIONS

DM :	Diabetes Mellitus
DFU :	Diabetes Foot Ulcer
CVD:	Cardiovascular Disease
PAD:	Peripheral Artery Disease
TC:	Cholesterol
TG:	Triglyceride
HDL-C:	High Density Lipoprotein Cholesterol
LDL-C:	Low Density Lipoprotein Cholesterol
VLDL:	Very Low Density Lipoprotein
LEA:	Lower Extremity Amputation
FPG:	Fasting Plasma Glucose
IGI:	Impaired Glucose Intolerance
DKA:	Diabetic Ketoacidosis
HHS:	Hyperglycemia Hyperosmolar State
WHO:	World Health Organization
ADA:	American Diabetic Association