Incidence of Bone Changes In Diabetic Foot

Thesis Submitted for the Partial Fulfilment of the Degree of Master in Internal Medicine

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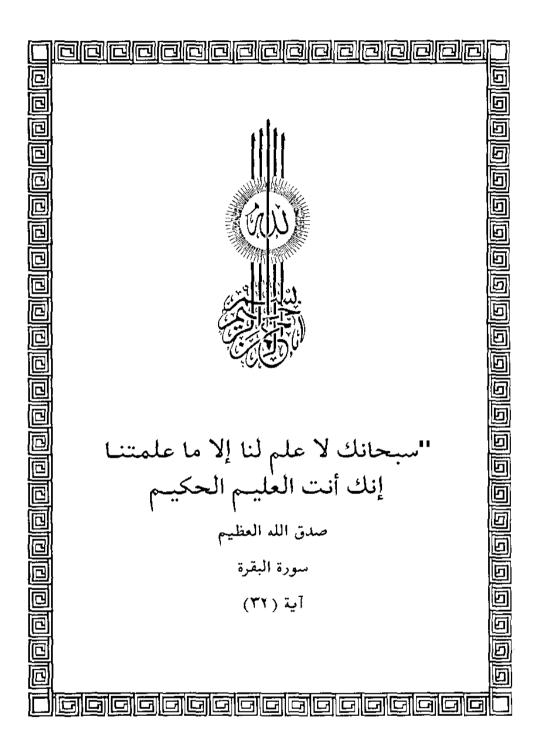
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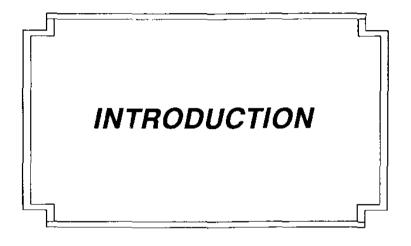
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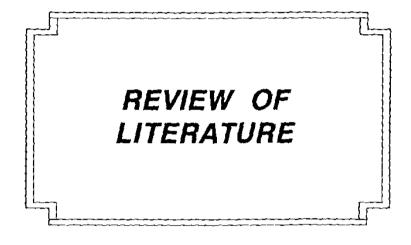
INTRODUCTION

Foot complications in diabetic patients are the most common causes of non traumatic amputation of lower extremities. Most lower extremity amputation, performed in diabetic patients for infection are preceded by foot ulcer. Foot ulcers serve as a portal of entry for osteomyelitis. Clinical judgment may be inadequate, as low grade osteomyelitis may underlie diabetic foot ulcers without the usual clinical manifestations of infection. The majority of diabetic foot ulcers have an underling osteomyelitis that is clinically unsuspected [Newman et al., 1991].

Bone biopsy for diagnosis of osteomyelitis, is an invasive procedure and may be contraindicated in patients with diabetes. Nuclear imaging techniques in particular radio active isotope scanning are the potential tools to replace the need for bone biopsy in diagnosis of osteomyelitis [Newman et al. 1991]. Radio active isotope—scan is highly sensitive and accurate for the diagnosis of osteomyelitis in diabetic foot ulcer [Newman et al., 1992; and Anderson, 1989].

Aim Of Work:

The aim of this study is to determine both the prevalence and the clinical characteristics of osteomyelitis in diabetic foot ulcers, using radio active isotope scan.



Chapter I					
Diabetes Mellitus:					
Definition and Classification					
☐ Type I: Insulin Dependent Diabetes Mellitus (IDDM)					
☐ Type II: Non-Insulin Dependent Diabetes Mellitus (NIDDM)					
☐ Malnutrition-Related Diabetes Mellitus					
□ Other Types of Diabetes					

CHAPTER I

DIABETES MELLITUS

Definition and classification:

Diabetes mellitus is heterogenous primary disorder of carbohydrate metabolism with multiple etiologic factors that generally involve absolute or relative insulin deficiency or insulin resistance or both. All causes of diabetes ultimately lead to persistent hyperglycemia which is the hallmark of this disease syndrome, [Olefsky, 1992].

Heterogenicity implies that there are differences among various groups of patients in term of etiology and pathogenesis (genetic, environmental and immune factors), in natural history and in response to treatment. Diabetes therefore is not a single disease but a syndrome [Fajans et al., 1978].

In 1979 an international work group sponsored by the National Diabetes Data Group (NDDG) of the National Institute of Health published a classification of diabetes mellitus and other categories of glucose intolerance [Harris and Cahill, 1979].

It was adopted and altered slightly by the World Health Organization (WHO). The following classification is based essentially on the NDDG and WHO work group with minor modifications [Stefan, 1990], (see Table 1).

Table (1)
Classification of diabetes mellitus and other categories of glucose intolerance

_	·····		Stages in Natural History or	T
	O.V	autoto.	Evolution (also see B, C, and	Other information or
ļ	Clinical classes	Subclasses	Statistical Risk Classes A. B	Explanation
L_			below)	<u> </u>
A.	Diabetes mellitus (DM)			
ī.	Type I. Insulin		ļ	Islet-cell antibody (IC A)
1	dependent types (IDDM)		1- Preketosis-prone	positive
		a. Type IA: Classical		
il		b. Type IB: Primary autoimune	a. Diabetic GIT	
			b. Fasting hyperglycemia	
IJ.			2- Kelosis-prone Insulin	Insulin autoantibody (IAA)
<u></u> -	Town D. M. San N.	a. NIDDM in obese	dopendent a	positive.
II.	Type II. Non-insulin-		1- Non-insulin requiring a	LIODY: Makusika appart
	dependent types	b. NIDDM in nonobese	a- Diabetic GTT	MODY: Maturity-onset diabetes of young
	(NIDDM)	c. MODY-NIDDM inyoung plus autosomal dominant inheritance	b- Fasting hyperglycomia 2- Insulin requiring	diabetes of young
) -	Malnutrition-related	a. Fibrocalculous pancreatic diabetes.	2- msum requiring	Insulin-dependent for
'''	diabetes mellitus	a. Profocalculous paricreatic diabetes:		health and life not for
IĮ.	(MRDM)	b. Protein-deficient diabetes		prevention of ketosis
╟┰╴	Other types, including	1- Pancreatic disease	 	prevention of Retools
II	diabet mellitus	2- Hormonal etiology	1	ነ
1	associated with	3- Drug- or chemically induced		
	certain conditions and	4- Certain genertic syndromes		
iſ	syndormes:	5- Insulin receptor abnormalities		
IJ	-,	6- Other miscellaneous conditions		Į Į
В.	Impaired glucose	a. IGT in obsese		ICA positive in type 1 DM
	tolerance (IGT)	b. IGT in nonobses.		'
l	, ,	c. IGT in MODY.		
]		d. IGT associated with certain		
!!		conditions and syndromes:	ļ	1
		Pancretic disease.		
H	!	2. Hormonal etiology.		
		3. Drug- or chemically induced.	1	
		4. Certain genetic syndromes.		1
ll l		Insulin receptor abnormalities.]	
		6. Other miscellaneous conditions		
C.	Gestational diabetes			May be precursor of type II
	(GDM).			or type I diabetes.
	Nations described			
_	tistical risk classes:		1	
^`	Previous abnormality of glucose tolerance		[
	(prevAGT),			
В	Potential abnormality of]	ICA positive, decreased
-	glusoce tolerance			first phase insulin response
L_	(potAGT).			in type I DM.

^{*} a: Major clinical forms of diabetes.

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Source: Strefan, S.; Fajans, M.D.:Classification and diagnosis of diabetes. In: Diabetes Mellitus, theory and practice, 4th ed. Rifkin, H.; Porte, D. Jr. (eds), Elsevier science publishing Co., New York, Amsterdam, London, 1990; 22: pp347.

^{*} b: Major clincial form in parts of Africa, Asia, Carbbean