

Contents

	Page
REVIEW OF LITERATURE:	1
Diabetes Mellitus	1
Classification	1
WHO Expert Committee Classification	2
Another Classification (Christy, et al.; 1977)	3
ADA Classification (American Diabetic Association, 1997)	5
Type I Diabetes Mellitus	6
Type 2 Diabetes Mellitus	7
Other specific types of Diabetes (Maturity-onset) (Diabetes of the Young MODY)	7
Gestational Diabetes	8
Impaired Glucose Intolerance and Impaired Fasting Glucose	9
Role of the Laboratory in Diabetes Mellitus	9
Diagnosis	9
Management	9
Pathogenesis of Pre-clinical and Clinical overt Diabetes	10
Possibilities regarding the primary defect in the pathogenesis of Diabetes Mellitus & its complications:	13
IDDM	13
Role of Autoimmunity	15
NIDDM	15
Insulin Secretion	16
Insulin Resistance	19
Features of IDDM & NIDDM	19
Secondary Diabetes	20
Diseases of pancreas	20
Hormonal overactivity	20
Drugs or chemically induced conditions	20
Insulin Receptor Abnormalities	21
Genetic Syndromes	21
Impaired Glucose Tolerance (IGT)	21
Gestational Diabetes	21
Previous Abnormalities of Glucose Tolerance	22
Potential Abnormalities of Glucose Tolerance	22
Clinical Manifestations of IDDM	23
Clinical Manifestations of NIDDM	25
Diagnostic Procedures and Criteria	27
Complications of Diabetes Mellitus	27
Complications of NIDDM	27
Retinopathy	27
Nephropathy	28
Macroangiopathy	28
Microvascular Disease	29
Neuropathy	30
Complications of IDDM	

II

General Plane of Treatment of D.M. -----	31
Dietary Management of Diabetes -----	31
Insulin in the treatment of Diabetes -----	32
Indications for insulin treatment -----	32
Types of insulin -----	33
Purity of insulin -----	33
Trade names of insulin -----	34
Human insulin -----	34
Semi-synthetic human insulin -----	34
Recombinant DNA (r DNA) human insulin -----	34
Certain complications of treatment with insulin -----	35
Transplantation of the pancreas and islet tissues -----	36
Types of transplants, Patients selection & Prevention of graft rejection -----	36
Oral Hypoglycemic Agents -----	37
Primary Mechanism of Action of Sulfonylurea Agents -----	37
Diagnostic Procedures of Diabetes Mellitus -----	38
Oral Glucose Tolerance Test (OGTT) -----	39
Intravenous Glucose Tolerance Test (IGTT) -----	41
Tolbutamide Response Test -----	42
Steroid-Primed Oral Glucose Tolerance Test -----	43
Examination of the urine for sugar and ketones -----	44
Examination of blood glucose level -----	46
Glycohemoglobin -----	47
Fructosamine -----	48
Glycosylation = Glycation -----	49
Insulin, Proinsulin and C-Peptide -----	51
C-Peptide -----	54
Autoimmunity & Diabetes Mellitus -----	56
Autoantibodies against Islet Cell Antigens (ICA) -----	56
Autoantibodies against Glutamic Acid Decarboxylase (GAD) ---	60
Insulin Autoantibodies -----	67
Phospholipids Autoantibodies (PLAs) -----	67
Islet-cell protein tyrosine phosphatase autoantibodies -----	68
(IA-2/ICA512) = (IA-2A)	
Glima 38 (glycosylated islet cell membrane antigen) autoantibodies	69
Clinical value of detecting autoantibodies in Diabetes Mellitus ---	70
Adhesion Molecules -----	79
The Selectin Family -----	80
The Integrins -----	81
Human Vascular Cell Adhesion Molecule-1 (VCAM-1) -----	82
ICAM and VCAM in Diabetes Mellitus -----	84
E-Selectin and P-Selectin in Diabetes Mellitus -----	91
Material & Methods -----	96
Methods -----	98
Glucose -----	98
Glycosylated hemoglobin (HbA1c) -----	101
C-Peptide -----	107
Islet Cell Antigen Autoantibodies (ICA) -----	117

III

Glutamic Acid Decarboxylase (GAD) -----	123
Human Vascular Cell Adhesion molecule-1 (VCAM-1) --	130
Human soluble E-Selectin -----	137
Results -----	145
Discussion -----	169
Summary & Conclusion -----	209
References -----	217
Arabic Summary	