

MemoCharts Pharmacology: Diabetes Mellitus and Its Drug Therapy (Review chart)

DIABETES MELLITUS AND ITS DRUG THERAPY					
Criteria for the Diagnosis of Diabetes Mellitus (DM)			Classification of Diabetes Mellitus		
Diabetes: HbA1c 6.5% or A1C 48 mmol/mol, FPG (126 mg/dL) or 7.0 mmol/L, 2h PG (200 mg/dL) or 11.1 mmol/L, OGTT (250 mg/dL) or 140 mg/dL, Fasting: > 126 mg/dL or > 7.0 mmol/L, Random: > 200 mg/dL or > 11.1 mmol/L			Type 1: Beta-cell destruction, leading to absolute insulin deficiency. Type 2: Insulin resistance (most common), beta-cell dysfunction, and insulin resistance. Prediabetes: OGTT 100-125 mg/dL, Fasting > 100 mg/dL, A1C 5.7% - 6.4%.		
Criteria for the Diagnosis of Diabetes Mellitus (DM)			Classification of Diabetes Mellitus		
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Characteristics of Type 1 and Type 2 Diabetes Mellitus					
Type Age of onset Genetics Pathogenesis		Immunologic Non-immunologic		Associated Conditions Precursors Prevent Treatment	
Type 1: Insulin - dependent, onset usually before 30 years of age, genetic susceptibility, absolute insulin deficiency		Autoimmunity (insulin, islet cell, glutamic acid decarboxylase, GAD), beta-cell destruction, insulin antibodies		Other autoimmune diseases, like Type 1 diabetes and Hashimoto's thyroiditis	
Type 2: Non-insulin - dependent, onset usually after 40 years of age, genetic susceptibility, relative insulin deficiency		Insulin resistance, beta-cell dysfunction, and insulin antibodies		Prediabetes, hypertension, dyslipidemia, smoking, obesity, metabolic syndrome	
Metabolic Changes in Diabetes Mellitus					
Phase Action		Hepatocyte Adipocyte Major cellular consequences of actions		Pancreas - > cells Endothelial cell	
1. Hyperglycemia		Hepatocyte: Glycogenolysis, gluconeogenesis, glycerol release, ketone body production Adipocyte: Lipolysis, glycerol release, glycerol esterification, triglyceride synthesis		Pancreas: > insulin release, > C-peptide release, > GLP-1 release Endothelial cell: Hyperglycemia, glycation, protein modification	
DM: HbA1c, FPG, 2hPG, OGTT, A1C, HbA1c, C-peptide, GLP-1, C-peptide		Hepatocyte: Glycogenolysis, gluconeogenesis, glycerol release, ketone body production Adipocyte: Lipolysis, glycerol release, glycerol esterification, triglyceride synthesis		Pancreas: > insulin release, > C-peptide release, > GLP-1 release Endothelial cell: Hyperglycemia, glycation, protein modification	
2. Hyperglycemia		Hepatocyte: Glycogenolysis, gluconeogenesis, glycerol release, ketone body production Adipocyte: Lipolysis, glycerol release, glycerol esterification, triglyceride synthesis		Pancreas: > insulin release, > C-peptide release, > GLP-1 release Endothelial cell: Hyperglycemia, glycation, protein modification	
3. Hyperglycemia		Hepatocyte: Glycogenolysis, gluconeogenesis, glycerol release, ketone body production Adipocyte: Lipolysis, glycerol release, glycerol esterification, triglyceride synthesis		Pancreas: > insulin release, > C-peptide release, > GLP-1 release Endothelial cell: Hyperglycemia, glycation, protein modification	
4. Hyperglycemia		Hepatocyte: Glycogenolysis, gluconeogenesis, glycerol release, ketone body production Adipocyte: Lipolysis, glycerol release, glycerol esterification, triglyceride synthesis		Pancreas: > insulin release, > C-peptide release, > GLP-1 release Endothelial cell: Hyperglycemia, glycation, protein modification	
Groups Based on Diabetes Mellitus					
Classification by (a) Non-Actions Mechanisms of Action		Classification by (b) Mechanisms of Action		Classification by (c) Major Side Effects	
1. Insulin (Hyperinsulinism)		1. Glucosidase inhibitors: 2. Glucagon receptor antagonists: 3. DPP-4 inhibitors: 4. SGLT2 inhibitors: 5. GLP-1 receptor agonists: 6. Metformin: 7. Pioglitazone: 8. Dexamethasone		1. Insulin for Type 1 DM 2. Insulin for Type 2 DM 3. Insulin for Type 2 DM 4. Insulin for Type 2 DM 5. Insulin for Type 2 DM 6. Insulin for Type 2 DM 7. Insulin for Type 2 DM 8. Insulin for Type 2 DM	
2. Insulin Secretagogues (Hyperglycemia)		1. Insulin sensitizers (metformin, pioglitazone, GLP-1 receptor agonists, SGLT2 inhibitors, DPP-4 inhibitors, GLP-1 receptor agonists, metformin, pioglitazone, GLP-1 receptor agonists, SGLT2 inhibitors, DPP-4 inhibitors)		1. Hyperglycemia 2. Hyperglycemia 3. Hyperglycemia 4. Hyperglycemia 5. Hyperglycemia 6. Hyperglycemia 7. Hyperglycemia 8. Hyperglycemia	
3. Metformin (Metformin)		1. Metformin: 2. Metformin and sulfonylurea: 3. Metformin and GLP-1 receptor agonist: 4. Metformin and SGLT2 inhibitor: 5. Metformin and DPP-4 inhibitor: 6. Metformin and GLP-1 receptor agonist: 7. Metformin and SGLT2 inhibitor: 8. Metformin and DPP-4 inhibitor		1. Metformin: 2. Metformin and sulfonylurea: 3. Metformin and GLP-1 receptor agonist: 4. Metformin and SGLT2 inhibitor: 5. Metformin and DPP-4 inhibitor: 6. Metformin and GLP-1 receptor agonist: 7. Metformin and SGLT2 inhibitor: 8. Metformin and DPP-4 inhibitor	
4. Thiazolidinediones (Thiazolidinediones)		1. Thiazolidinediones: 2. Thiazolidinediones and metformin: 3. Thiazolidinediones and GLP-1 receptor agonist: 4. Thiazolidinediones and SGLT2 inhibitor		1. Thiazolidinediones: 2. Thiazolidinediones and metformin: 3. Thiazolidinediones and GLP-1 receptor agonist: 4. Thiazolidinediones and SGLT2 inhibitor	
5. DPP-4 inhibitors (DPP-4 inhibitors)		1. DPP-4 inhibitors: 2. DPP-4 inhibitors and metformin: 3. DPP-4 inhibitors and GLP-1 receptor agonist: 4. DPP-4 inhibitors and SGLT2 inhibitor		1. DPP-4 inhibitors: 2. DPP-4 inhibitors and metformin: 3. DPP-4 inhibitors and GLP-1 receptor agonist: 4. DPP-4 inhibitors and SGLT2 inhibitor	
6. SGLT2 inhibitors (SGLT2 inhibitors)		1. SGLT2 inhibitors: 2. SGLT2 inhibitors and metformin: 3. SGLT2 inhibitors and GLP-1 receptor agonist: 4. SGLT2 inhibitors and DPP-4 inhibitor		1. SGLT2 inhibitors: 2. SGLT2 inhibitors and metformin: 3. SGLT2 inhibitors and GLP-1 receptor agonist: 4. SGLT2 inhibitors and DPP-4 inhibitor	
7. GLP-1 receptor agonists (GLP-1 receptor agonists)		1. GLP-1 receptor agonists: 2. GLP-1 receptor agonists and metformin: 3. GLP-1 receptor agonists and SGLT2 inhibitor: 4. GLP-1 receptor agonists and DPP-4 inhibitor		1. GLP-1 receptor agonists: 2. GLP-1 receptor agonists and metformin: 3. GLP-1 receptor agonists and SGLT2 inhibitor: 4. GLP-1 receptor agonists and DPP-4 inhibitor	
8. DPP-4 inhibitors (DPP-4 inhibitors)		1. DPP-4 inhibitors: 2. DPP-4 inhibitors and metformin: 3. DPP-4 inhibitors and GLP-1 receptor agonist: 4. DPP-4 inhibitors and SGLT2 inhibitor		1. DPP-4 inhibitors: 2. DPP-4 inhibitors and metformin: 3. DPP-4 inhibitors and GLP-1 receptor agonist: 4. DPP-4 inhibitors and SGLT2 inhibitor	
9. SGLT2 inhibitors (SGLT2 inhibitors)		1. SGLT2 inhibitors: 2. SGLT2 inhibitors and metformin: 3. SGLT2 inhibitors and GLP-1 receptor agonist: 4. SGLT2 inhibitors and DPP-4 inhibitor		1. SGLT2 inhibitors: 2. SGLT2 inhibitors and metformin: 3. SGLT2 inhibitors and GLP-1 receptor agonist: 4. SGLT2 inhibitors and DPP-4 inhibitor	
10. GLP-1 receptor agonists (GLP-1 receptor agonists)		1. GLP-1 receptor agonists: 2. GLP-1 receptor agonists and metformin: 3. GLP-1 receptor agonists and SGLT2 inhibitor: 4. GLP-1 receptor agonists and DPP-4 inhibitor		1. GLP-1 receptor agonists: 2. GLP-1 receptor agonists and metformin: 3. GLP-1 receptor agonists and SGLT2 inhibitor: 4. GLP-1 receptor agonists and DPP-4 inhibitor	
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Reviews

This publication is wonderful. I actually have go through and i am sure that i am going to going to study once more once more down the road. I am easily could get a enjoyment of studying a written book.

(Mozelle Halvorson)

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