



Review on:DIABETES MELLITUS

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Abstract : Gestational diabetes mellitus has been associated with various maternal and perinatal adverse outcomes. Screening and subsequent treatment are associated with short term benefit. High blood glucose levels are symptomatic Of diabetes mellitus as a consequence of inadequate pancreatic insulin secretion or poor insulin-directed mobilization of glucose by target cells. It can be categorized to the worlds major disease considering to the affects high population in earth and presents two main type 1 and type 2. Type 1 diabetes mellitus is due to damage of B cells of pancreatic islets. In type1 diabetes mellitus the body fails to produce the insulin and the person requires to administer the insulin. Type 2 diabetes mellitus is due to the imperfection of B cell function genetically. The patient are between normal and diabetes that is pre-diabetic patients. The primary cause is excessive body weight and not enough exercise. It is clear, however,that diabetes is a major health problem which affects Up to 5% of the american population and which causes both premature death and major morbidity including blindness, kidney failure, premature cardiovascular disease and gangrene of the lower extremities. There are various treatments and prevetions help to cure form diabetes like exercise, drinking water,implement portion control etc. The chennal vrben population study [CUPS] and the national vrben Diabetes surrvey [NUDS] revealed rising prevalence of diabetes in india. The present review therefore is an attempt to focus on the physiological aspect of diabetes, its complications, goals of management,and synthetic and herbal treatment of diabetes.

Key words - diabetes, blood glucose levels, diabetes mellitus, insulin, treatment, prevetions, CUPS.

1.INTRODUCTION

Diabetes mellitus is defined by the american diabetes Association [ADA]expert committee in their 1997 recommendations as “a group of metabolic disease characterized by hyperglycemia resulting from defects in insulin secretion, insulin action or both.The chronic hyperglycemia is associated with long-term damage, dysfunction and failure of various organs, especially the eyes, kidney, nerves, heart and blood vessels.”Thus, diabetes covers a wide range of heterogeneous diseases[1].

Hyperglycaemia during pregnancy is found to be associated with various maternal and perinatal adverse outcomes.[2,3]

The detection of GDM during pregnancy provide an opportunity to identify women at risk of short term and long term complications. We now have evitence that early diagnosis and intervation can reduce the a adverse perinatal outcomes[4,5,6]

Drugs are used primarily to save life and alleviate symptoms. Secondary aims are to prevent long-term diabetic complications and, beliminating various risk factors, to increase longevity. Insulin replacement therapy is the mainstay for patients with type 1 DM while diet and lifestyle modifications are considered the cornerstone for the treatment and management of type 2 DM [7]

It is caused due to deficiency of insulin or resistance to insulin or both. Insulin is secreted by B-cells of pancreas to control blood sugar levels [8].

Diabetes is the most common disease. Firstly the presence of sugar in the urine of Diabetics was demonstrated by Dobson in 1755. In 1989 von Mering and Minkowski that pancreatectomised dogs become diabetic in addition to developing digestive disturbance [9].

The glucose tolerance test is rarely useful in clinical situations. On the other hand, for research projects which require a definite, if arbitrary, distinction between diabetes and nondiabetes, the glucose tolerance test is the procedure of choice. Standardized methods of procedure and interpretation are available [10].

A number of information technology based interventions were applied to enhance blood glucose monitoring and diabetes management. Previous evidence demonstrates that information technology can improve diabetes management through better metabolic control and help in the global care of diabetic peoples with chronic illnesses [11,12,13].

Information technology based interventions have some advantages such as reducing medical errors, generating potential data for research, and increasing the ability for continuous improvement. On the other hand, higher cost of initially and maintenance activities, difficulty of using computer and information system for healthcare providers and spending more time than interacting with a patient are some disadvantages of using information technology in diabetes care [14,15].

The total number of people with diabetes is predicted to rise to about 300 million by 2025, with one-third

of affected individual living in India and China alone. The largest increases in the diabetic population in developing countries are projected to be in the most economically productive age groups [16].

Therefore, current guidelines focus on the association between poor glycaemic control in DM (defined as glucated haemoglobin A1c [HbA1c] >69 mmol/L or 8.5%) and adverse surgical outcomes. [17,18]

2. PATHOPHYSIOLOGY

Type 2 DM is characterized by insulin insensitivity as a result of insulin resistance, declining insulin production, and eventual pancreatic beta-cell failure. This leads to a decrease in glucose transport into the liver, muscle cells and fat cells. There is an increase in the breakdown of fat with hyperglycemia [19,20]. Type 1 diabetic patients are usually young (children or adolescents) and not obese when they first develop symptoms. There is an inherited predisposition, with a co-fold increased incidence in first-degree relative of an index case, and strong associations with particular histocompatibility antigens (HLA type). Studies of identical twins have shown that genetically predisposed individual must additionally be exposed to an environmental factor such as viral infection. Viral infection may damage pancreatic B-cell and expose antigens that initiate a self-perpetuating autoimmune process. The patient becomes overtly diabetic only when more than 90% of the B cells have been destroyed.

In this type, insulin deficiency attenuates long term potentiating and might lead to deficits in learning and memory. Type 2 diabetes is accompanied both by insulin resistance and by impaired insulin secretion, each of which are important in its pathogenesis. Such patients are often obese and usually present in adult life, the incidence rising

progressively with age as B-cell function declines. In this insulin resistance leads to both AB plaque formation and tau hyperphosphorylation. During hyperinsulinemia, insulin and AB competes for insulin degrading enzyme, leading to AB

accumulation plaque formation. A decrease in insulin receptor signaling lead to inhibition of Akt and dephosphorylation (activation) of GSK-3B and result in tau hyperphosphorylation[21,22]

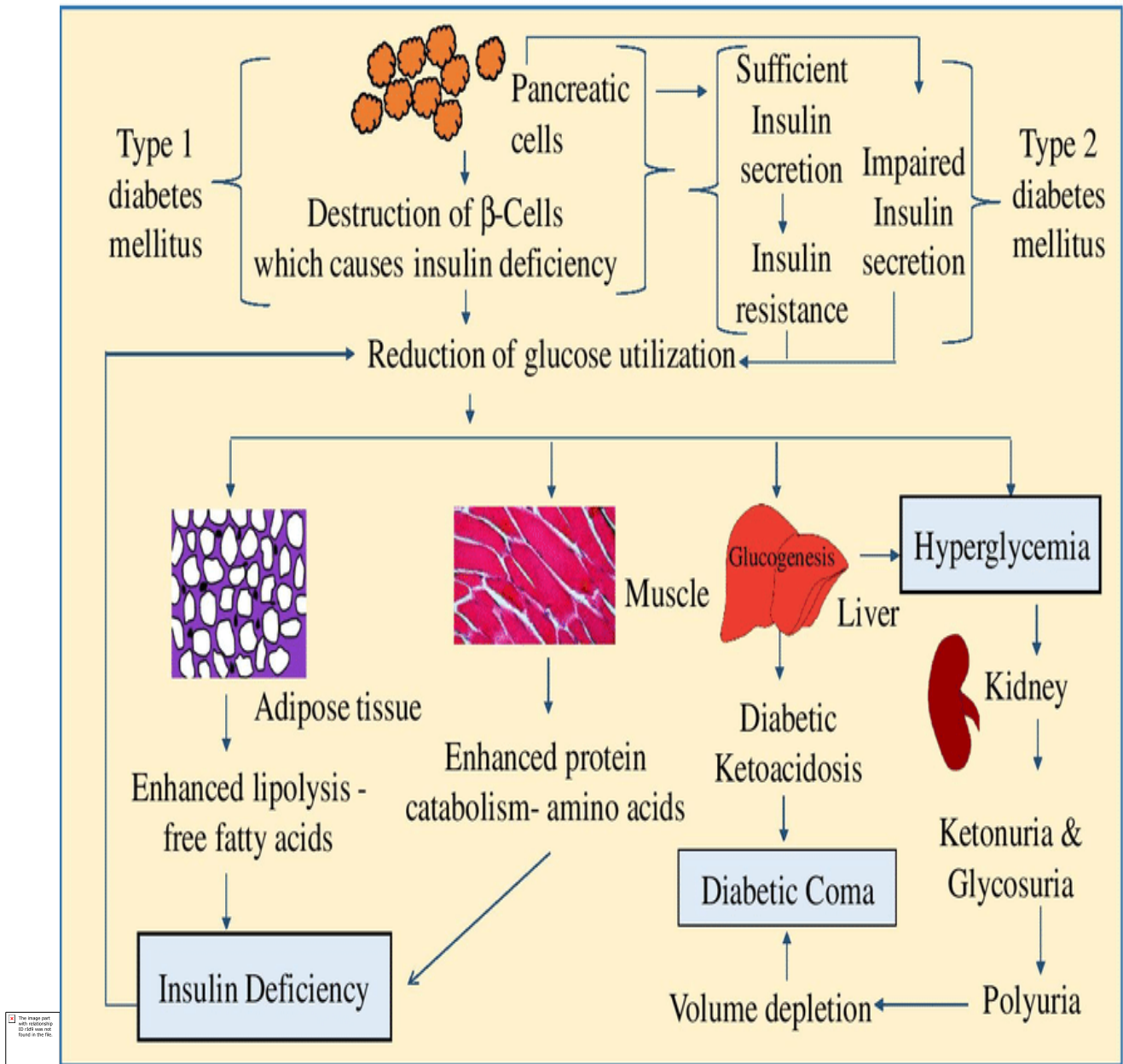


fig.1. pathophysiology of diabetes mellitus type

3.Symptoms

It often presents asymptotically, but when symptom develop patient usually present with

- 3.1.Polyurea
- 3.2.Polydipsia
- 3.3.Weight loss
- 3.4.Hyperglycemia
- 3.5.Poor skin turgor
- 3.6.Increased thirst
- 3.7.Increased urination
- 3.8.Lack of energy and fatigue
- 3.9.Bacterial and fungi infection
- 3.10.Delayed wound healing
- 3.11.Have blurry vision
- 3.12.Feels very tired
- 3.13.Have very dry skin
- 3.14.Are very hungry
- 3.15.Red,swollen,tender gums
- 3.16.Slow healing cut and wounds

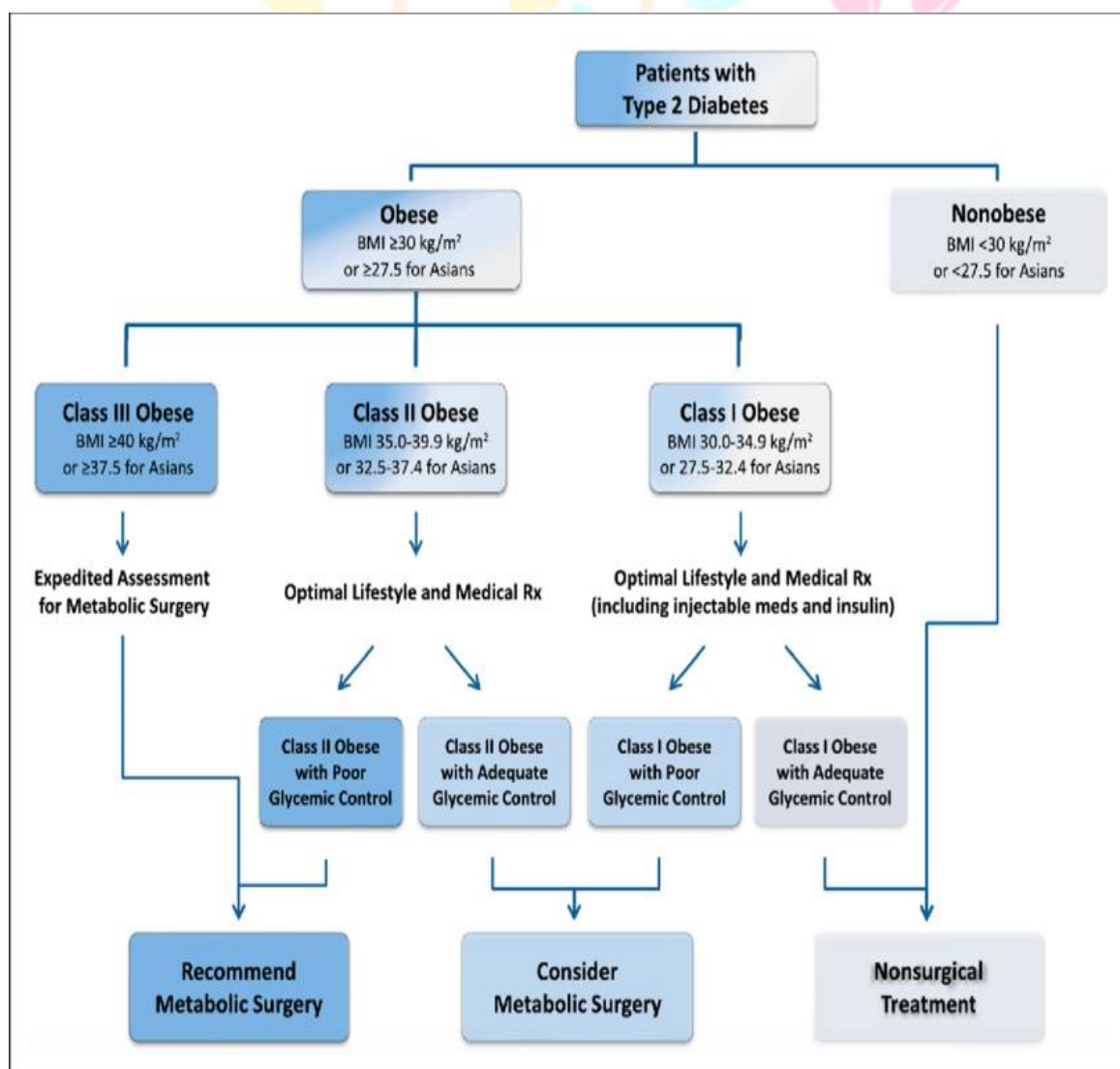
4.Treatment

For Insulin therapy should aim to mimic nature, which is remarkably successful both limiting postprandial hyperglycemia and preventing hyperglycemia between meals [23,24]. Site of administration of insulin injection is equally important for better and safe action of insulin and can be give by intermuscular or intravenous route. In a type2 diabetic mellitus treatment with non insulin agent contribute to improve the efficiency of insulin on glycemia level and reflects the need to find a specific and a personalized therapies for the profile of each patient[25]. the prevention on complication of diabetic mellitus is relevent and requires and early diagnosis to together with a adequate treatment and follow up of the patient. The 2016 guidelines for diabetic treatment according to american diabetes

mellitus association are very certain and not contravenousial [26]. the most important part among treatment is the patient to discipline as in drug reception as in the diet. The need of the hour pevention this disease by early detection and modification in lifestyle with the incorporation of the a healthy diet an increase physical activity and weight reduction for those to are in the free diabetic stage and appropriate treatment by oral hypoglycemic agent and insuli therapy for diabetic individual[27]. early detection and appropriated treatment are the cornerstones for delaying the onest and progression of the dibetic complication vitamin12 . retinopathy, nephropathy, stroke, peripheral vascular disease and ischemic heart disease. The treatment for diabetes mainly involve the regulation of blood sugar level and to prevent diabetic complication. A medicine, diet and exercise are the included in temperament. Lifestyle modification and oral anti-diabetic medictions are recommended for initial treatment[28]. the detection diabetic mellitus during pregnancy provided an opportunity to identify women at risk short term and long term complications. Some argued that pregnancy related hyperglycaemia might be completely physiological toprovide nutrient ti the fetus and whether there was a need to diagnose and treat diabetes mellitus. Although classification of diabetes is important and has implication for the treatment strategies this is not as easy task and many patient do not easily fit into a single class especially younger adults and 10% of those initially classified may required revision[29, 30, 31, 32]. the implications of increased free radicals, oxidative stress, and many metabolic stressors in the development pathogenesis and complications of

diabetes mellitus are very strong and well documented despite the inconsistency of the clinical trials using antioxidant in the treatment regimens of diabetes[33, 34, 35, 36, 37, 38, 39, 40, 41]. the standard treatment of diabetic ulcer include measures to assess vascular status and optimize glycemic control as well as extensive debridement infection elimination by antibiotic therapy based on wound pathogen culture, the use of moisture dressings of offloading high pressure from the wound bed. Treatment adherence in diabetes is an area of interest and concern to health professionals

and clinical researches even through a great deal of prior research has been done in the area. In diabetes, patient are expected to follow complex set of behavioral actions to care to their diabetes on a daily basis. These actions involve engaging in positive lifestyle behaviors, including following a meal plan and engaging in appropriate physical activity taking medications when indicated; monitoring blood glucose level; responding to and self treating diabetes or other health related problem[42].



5. Conclusion

Diabetes mellitus a metabolic disease and its management have aware the clinicians in all over the

counters. In current status, a high number of population have this diabease which is related with the modern life style, unhealthy diet and sedentary life. The term diabetes mellitus, include several different metabolic disorder that all, if left untreated, result in abnormally high concentration of a sugar called glucose in the blood. Diabetes mellitus type results. When the pancreas no longer produces signification amount of hormones insulin, usually owing to the autoimmune destruction of the insulin producing beta cell of the pancreas. Diabetes mellitus type2, in contrast, is now thought to result from autoimmune attacks on the pancreas and or insulin resistance. The pancreas of a person with type 2 diabetes may be producing normal or even abnormally large amount of insulin. The main goal of diabetes management is, as for as possible, to restore carbohydrate metabolism to a normal sate. To achieve this.

Type2 Dibetes mallites is a metabolic disease that can be prevented through lifestyle modification, diet control of overweight and obesity. Education of the populace is still key to control of this emerging epidemic. Novel drug being development, yet no

cure is available is sight for the disease. Despite new insight into the pathophysiology of disease. Management should be tailored to improve the quality of life individuals with type2 diabetes mallites. Diabetes mellites is the epidemic of the century and without effective diagnostic method at an early stage, diabetes will continue to rise, this review focus on the types the effective diagnostic methods and criteria to be used for diagnosis of diabetes and prediabetes. Evidently, diabetes is the complex disease with a large pool of gene that are involved in its development. The precise idendification of the genetic bases of the diabetes potentially provides and essential tool to improve diagnosis, therapy (more towards individualized patient targeted therapy) and better effective genetic counselling. Further more,our advanced knowledge of the associated between medical genetics and the chronic complications of a diabetes, will provides an additional advantage to delay or eradicate these complication that impose an immense pressure on patient quality of life and the significantly rising cost of health care services.

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