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Hyperglycemia in Type II Diabetic Patients: an Overview

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Commentary

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INTRODUCTION

Diabetes is the most common metabolic disorder out of various lifestyle diseases. According to World Health Organization (W.H.O) and International Diabetes Federation (I.D.F) there may be vast increase the proportions. Nearly 382 million people were recorded in the world; it may be chance of rise to 592 million by upcoming years. Increase of Diabetic Mellitus mostly in much higher in developing countries compared to that of developed countries [1]. The ratio is like 42% in developed and 20% in developing Nations recorded consequently. U.A.E ranked top 5th among them and 7th leading in U.S.A cause of death in (2010). Most of the cases in U.S.A are under age of 20 have been diagnosed Diabetes.

The Diabetes causes severe problems like kidney failure, blindness, (or) eye damage, cardiovascular problems, limb amputation and various associated problems. This is due abnormalities in carbohydrate metabolism and insulin synthesis (or) body cannot use insulin properly. Glucose blinds up in the blood and for over many years it causes damages and results in raise in high blood sugar with associated symptoms like hunger, thirst, polyuria, glycosuria, leathery etc. Changes in blood glucose levels results in two major problems like Hyperglycemia and Hypoglycemia [2, 3].

High Blood Glucose level or Hyperglycemia occurs when the body gets too little insulin (or) when the body cannot use insulin properly. On the other hand Low Blood Glucose (or) Hypoglycemia occurs when the body utilizes too much of insulin. Hypoglycemia is most common health condition for Diabetic patient. If it is untreated over a long period causes serious life threatening problems, it should require immediate and appropriate medication.

Types of Diabetes Mellitus

There are three types of Diabetes like:

1. Type I Diabetes/ insulin-dependent diabetes
2. Type II Diabetes/ non-insulin dependent diabetes
3. Gestational Diabetes.

Type I Diabetes Mellitus: It result from autoimmune destruction of the insulin producing beta cells in pancreas this leads to increased blood and urine glucose. It gets usually under the age of 20. It may be due to genetic or diseased condition [4,7].

Type II Diabetes Mellitus: It is characterized by hyperglycemia (or) high blood sugar in combination of insulin resistance and lack of insulin which may be combined and reduce insulin secretion. 90% of all cases are typically type II Diabetes Mellitus. Mostly in obese adults [8].

Gestational Diabetes: It is a condition in which women without previously diagnosed diabetes shows high blood glucose levels during pregnancy [9].

Overview of Hyperglycemia in Type II Diabetes

Hyperglycemia occurs when the body gets too little insulin (or) when the body cannot use insulin properly. It should be treated immediately prior to diagnosis.

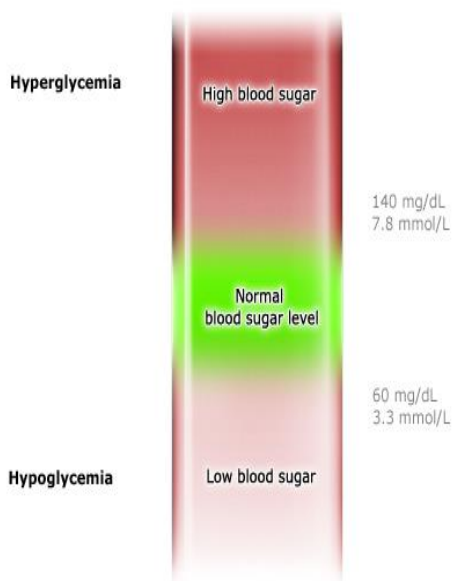


Figure 1: hyperglycemia and hypoglycemia in Type II Diabetes (image courtesy: <http://www.informedhealthonline.org/index.media.22c5b273c32077d98c860369459ed1a2v1.jpg>)

Symptoms of Hyperglycemia

The most common symptoms can be seen in Hyperglycemia are: High blood glucose level, polyphagia, polydipsia, polyuria, Blurred vision , Weight loss, Wounds and cuts heal poorly ,Dry mouth, Cardiac arrhythmia, Deep and rapid breathing, Impotence and many [10-15].

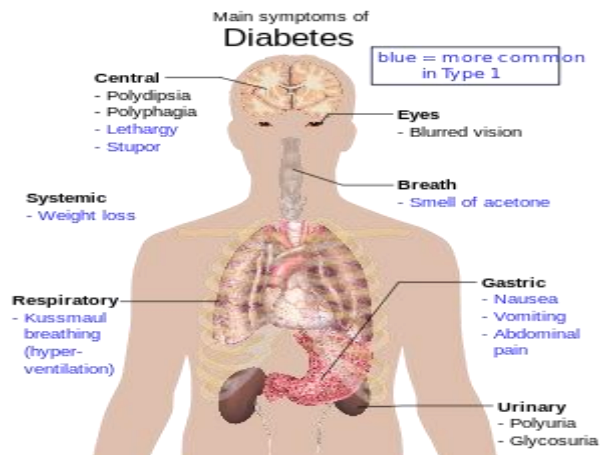


Figure 2: Overview of the most significant symptoms of diabetes. (Courtesy: http://en.wikipedia.org/wiki/Diabetes_mellitus_type_2)

CONCLUSION

There are many wide approaches in treating of hyperglycemia, like treatment with natural herbs or natural products finds better way in treating hyperglycemia [16-20]. However, nature is also rich in chemical compounds that are structurally similar to glucose. Sulfonylureas which have structural similarities with glucose and these support Incretins and Incretin mimetics these have been used in the treatment of Diabetes. These are short lived, hence they are immediately acted upon by Dipeptidyl peptidase-4[DDP-4]. Due to its longer duration of action it is used as a anti diabetic activity. Some of plants like Panax ginseng, the Asian vegetable bittermelon, Tian Hua Fen etc, are used in the treatment of lowering of blood glucose level (or) hyperglycemia [21- 26].

Another approach in treating hyperglycemia through hyperglycemic agents like glibenclamide lowers the blood glucose level. But with combination of amlodine, it is a calcium channel blocker, which is prescribed for hypertension. Both of these combinations of drugs do not show any lowering effect of blood glucose level as seen from the results [27]. These may cause drug-drug interactions and could effects both classes of drugs. There may be reasonable time interval between the administrations of both drugs. There may increase the blood glucose level.

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