

A descriptive study on pathophysiology of causes in diabetes mellitus

Un estudio descriptivo sobre la fisiopatología de las causas en la diabetes mellitus

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ABSTRACT

Diabetes mellitus type 2 is a metabolic disorder characterized by Hyperglycemia with clinical features Polydipsia, Polyuria, Polyphagia. DM is a sedentary life-style disorder where 79.4 million individuals in India may have effect of Diabetes Mellitus by 2030. The DM is due to impaired insulin secretion and abnormal fat metabolism in obese person with BMI > 25Kg/m². Also, the risk of DM is increased in individuals with familial tendency of DM, in persons whose physical activity is decreased. There are factors which also interfere with the recovery like stress, over alcohol consumption, smoking, improper nutrition etc.; The cause which obstruct the prognosis is briefly explained with its physiology from different articles.

Keywords: Smoking, Alcohol, Hyperglycemia, Genes, Obesity

RESUMEN

La diabetes mellitus tipo 2 es un trastorno metabólico caracterizado por hiperglucemia con características clínicas como polidipsia, poliuria y polifagia. La DM es un trastorno causado por un estilo de vida sedentario. En India,

79,4 millones de personas podrían padecer diabetes mellitus en 2030. La DM se debe a un deterioro de la secreción de insulina y a un metabolismo anormal de las grasas en personas obesas con un IMC > 25Kg/m². Además, el riesgo de DM aumenta en individuos con tendencia familiar a la DM, en personas cuya actividad física está disminuida. Hay factores que también interfieren en la recuperación, como el estrés, el consumo excesivo de alcohol, el tabaquismo, una alimentación inadecuada, etc.; las causas que dificultan el pronóstico se explican brevemente junto con su fisiología en diferentes artículos.

Palabras clave: tabaquismo, alcohol, hiperglucemia, genes, obesidad

INTRODUCTION

It's a known fact that diabetes mellitus (DM) is one of the ancient known conditions. About 3000 years ago, it was first mentioned in an Egyptian manuscript.

The distinction between type 1 and type 2 DM was defined in clear simple language in 1936. The frequency of type 2 diabetes mellitus (DM), a chronic metabolic condition, has been continuously rising worldwide.

Due to this pattern, it is rapidly turning into an epidemic in several nations, with the number of those infected predicted to double in the following ten years as a result of an ageing population ^[1]. The prevalence of diabetes is rising globally, and by the year 2025, it is expected that there will be around a doubling of new cases. Numerous causes, such as the alarming rise in obesity, sedentary lifestyles, and an ageing population, contribute to this spreading epidemic. The primary issue with diabetes is undoubtedly the morbidity and death brought on by the disease's complications ^[2]. It is understood that T2D is linked to a significant period of prediabetes, which is distinguished by the existence of insulin resistance. Cardiovascular disease seems to start at this point.^[2]

Diagnosis: Now, a fasting glucose level of 7.0 mmol/l and above is sufficient for the diagnosis. Since this (fasting) level has been proven to be related with plasma glucose levels of >11.1 mmol/l two hours after a glucose load, the diagnostic criteria for diabetes have recently changed. Diabetes mellitus can still be diagnosed with a random plasma glucose level of 11.1 mmol/l and higher.^[3]

Causes in General

Genes: Genetic code association studies may now be conducted without the need for a working hypothesis because to the introduction of gene chips that allow the identification of up to 5 million single-nucleotide polymorphisms (SNPs) in the genome.^[4] Common diseases like type 2 diabetes mellitus depend on numerous gene loci, all of which have minor to moderate consequences follow, as opposed to single gene disorders, in which the manifestation of the disease is altered by a mutant allele at a single gene locus. Known as a "multifactorial illness," type 2 diabetes mellitus is caused by genes (loci) that interact with both environmental and genetic variables.^[3] There are already more than 60 recognised gene loci where variations exist that affect type 2 diabetes. Based on

information regarding gene polymorphisms, several studies have examined the possibility of making a distinction between those with prevalent or incident type 2 diabetes and those without the disease. The C-statistic is typically used^[4]

Hereditary: In Studies of V. Zdravkovic et.al, it is said that in 38 of 41 patients, information regarding a family history of T2DM was available. 36 (95%) of the patients had positive family histories, while only 5% had negative ones. T2DM was present in a parent in 56.5%, both parents in 6%, and a parent and grandparent or second-degree relative in 37.5% of individuals with a positive family history. Fathers and mothers both had the same proportion of T2DM patients. Six (14%) of the mothers had gestational diabetes, which led to the development of T2DM.^[5] In most diabetic clinics, 30% of adult patients have a family history of the disease; however, in paediatric clinics, the familial incidence of diabetes has been shown to be 52%.

The height of blood sugar controls the rate of carbohydrate utilization by tissues, and in every given situation, this is adjusted to the level that comes the closest to assuring a sufficient rate of utilisation. Therefore, when the tissues' capacity to utilize carbohydrates is compromised, such as by an insulin shortage, an impairment of insulin action, or interference with intracellular oxidation, the head of blood sugar is raised, thereby speeding up the cells' disposal of sugar.^[6] When the patients were first diagnosed with diabetes, it was initially believed that their decreased glucose tolerance might have been exaggerated. Normal persons who are carbohydrate-starved; as well as that the condition may develop as a result of long-term, continuous consumption of low-carbohydrate meals. To think that, though, would be extremely naive. All instances of insulin sensitivity must unavoidably be caused by insulin's direct inhibition. Insensitivity could also result from intracellular glucose metabolism failure further along the chain or from an inability to store ingested carbohydrates as glycogen or fat. These possibilities demand examination right away.^[6]

Obesity: Most people with type 2 diabetes mellitus are obese, which led to the discovery that obesity is linked to reduced insulin activity in the liver and the peripheral tissues. Increases in plasma free fatty acids (FFA) and tumour necrosis factor alpha (TNF α) released from "full" adipocytes are two possible processes that contribute to the link between type 2 diabetes mellitus and obesity. Additionally, a lack of exercise has been linked to diabetes mellitus, which led to the discovery that exercise improves the effectiveness of insulin, likely through an increase of glucose transporters in muscle.^[3]

Tobacco: Numerous research have demonstrated that Smoking worsens glucose homeostasis and raises the incidence of diabetes. Smoking raises the risk of CHD and mortality by two to three times. in those with type 2 diabetes. Diabetic nephropathy is strongly linked to microvascular problems is also seems to have high risk due in smokers. Addicts had considerably higher insulin and C-peptide responses to oral glucose loads than non-smokers, and the euglycemic clamp technique's measurement of insulin resistance showed a dose-dependent positive correlation with insulin resistance. Smoking demonstrated dyslipidemia that was susceptible to atherosclerosis in

addition to enhanced insulin resistance. Smokers exhibited greater fasting triglycerides, lower levels of HDL cholesterol, and more small, dense, low density lipoprotein particles in their blood. Smokers also had higher fibrinogen levels and plasminogen activator inhibitor 1 activity.^[7] In rat experiments by Xi-tao XIE et.al, an increase in body fat may have contributed to the postnatal growth of the offspring of dams who had been exposed to nicotine. The fasting serum insulin levels of the offspring of nicotine-treated dams were greater than those of control at the age of 26 weeks, even though the fasting serum glucose levels were similar in the various groups of offspring. Additionally, the pattern of blood glucose levels in response to an oral glucose load in the children of nicotine-treated dams revealed greater numerical values at 30 min and a longer recovery evaluated at 120 min, as looking like Type 2 diabetes mellitus, in comparison to those of control offspring.^[8]

Alcohol: Alcohol affects glucose metabolism in both diabetic and non-diabetic persons in a wide range of ways. Alcohol hinders both gluconeogenesis and glycogenolysis, thus drinking it suddenly without meals can cause hypoglycemia, especially when glycogen levels are low and when it's combined with sulphonylurea. T2D is less common when alcohol is used, although binge drinking may make it more common.^[9] In comparison to low consumption or abstinence, moderate alcohol consumption, or 5 to 30 grammes per day, was linked to a 30% lower risk of type 2 diabetes (relative risk [RR]meta=0.72, 95% CI=0.67-0.77). The extent of this risk decrease is consistent with moderate drinkers reported lower risk of cardiovascular disease. High consumers have an increased risk of type 2 diabetes compared to moderate consumers, but whether they have an increased risk compared to low consumers or abstainers is less clear. High consumers have an increased risk of type 2 diabetes compared to moderate consumers, but whether they have an increased risk compared to low consumers or abstainers is less clear.^[10] The effects of alcohol on carbohydrate metabolism are complex. Some are directly influenced by alcohol or its metabolic products, acetaldehyde, and acetate, while others are caused by an increase in the NADH/NAD ratio caused by alcohol within the liver cell (NAD for nicotinamide adenine dinucleotide). Dehydrogenases' oxidation of alcohol to acetaldehyde and of acetaldehyde to acetate causes this alleged redox shift. Increases in the lactate/pyruvate ratio and the NADH/NAD ratio both contribute to the suppression of gluconeogenesis. 48 g of alcohol (approximately 4 glasses) causes a 45% reduction in hepatic gluconeogenesis. Chronic heavy drinking raises blood pressure, and hypertension is more common in alcoholics than in moderate drinkers by a magnitude of 2 to 3. There have been noticed modifications in the sympathetic nervous system, the renin-angiotensin-aldosterone system, and cortisol production. Contrary to moderation, excessive alcohol use also raises triglyceride levels, mostly through an increase in the formation of very-low-density lipoprotein cholesterol (VLDL). This may cause type 2 diabetes patients to have exceptionally high levels of triglycerides when combined with a disrupted clearance of triglycerides.^[11]

Psychological Factors: Psychological stress activates biological processes that are linked to type 2 diabetes mellitus (T2DM), such as the release of lipids and glucose into the bloodstream, the development of inflammatory cytokines, and a rise in blood pressure.^[12] The development from IFG and/or IGT to overt diabetes was brought on

by social and psychological factors, such as night shift work, daily stress, and administrative positions, possibly as a result of rising insulin resistance. In our study, night shift work posed the greatest risk for developing diabetes.

When on night shifts, subjects have sleep disturbances, which are linked to reduced glucose tolerance and are known to influence the sympathetic nervous system. Long sleep duration is also a risk factor for diabetes, regardless of complicating variables.^[13] Studies show that alpha-adrenergic blockade with phentolamine increased glucose-stimulated insulin secretion in type II diabetic patients under stressful conditions; the latter group demonstrated that this increase is five times greater in type II diabetic patients than in healthy, non-diabetic control subjects. One of the sulfonylurea oral medications for type II diabetes, glyburide, has been shown to bind to α_2 receptors in the pancreas, indicating that one of the medication's effects on insulin production may be brought about by antagonising adrenergic activity.^[14]

METHODS

A review to identify published studies about Diabetes Mellitus and its causes. This article also discusses about Relation of DM with its causes.

Study strategy: This study is taken with the following search strategy terms 'Diabetes' 'Diabetes Mellitus', 'Introduction of DM' 'Diagnostic criteria, 'Stress, Anxiety in Diabetes, 'Depression & its relation with Diabetes, 'Epidemiology and Diabetes', Psychiatry and Diabetes', In-vitro/in-vivo studies in Diabetes, Physiology. The above mentioned are taken from different databases like Google, Google scholar, Pub-Med, Research Gate.

DISCUSSION

Way of life advance wellbeing through sufficient nutritious food, legitimate rest, and effective climate. Because of quick monetary turn of events, urbanization, globalization, expanding westernization of way of life there is predominance of way of life sicknesses has disturbing extents among Indians lately. India represents about the second biggest nation in cases of diabetes, as per WHO each twelfth Indian is a diabetic. 1.4 million deaths because of diabetes which is considered as "Worldwide Burden of Diseases " Universally, Diabetes mellitus a rising medical condition, putting impractical expectations on people and in the general public. Notwithstanding the morbidity and mortality related with retinopathy, neuropathy, nephropathy, cardiovascular infection stays as the main source of death. Lifestyle disorders are ice-berg diseases, which increases both in rate and prevalence around the world. When considered as the sickness of middle aged and older, yet these days it is the disturbing infection of more youthful

age as well. The illness which disintegrates the general advancement of the country which itself influences the efficient time of life.

This article talks about the importance of cause which maintains the disease and often forgets to remove it. The root cause or the cause which continues the disease is vital as it hinders the prognosis. In order to attain this the physiology has to be understood which helps us to prescribe our medication and helps in managing the case. Here are the abstracts of some articles which show us the importance of cause in diabetes through which the intensity increased.

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LIST OF ABSTRACTS

S.No	Name of the Article	Abstract
1.	Insulin sensitivity, proinflammatory markers and adiponectin in young males with different subtypes of depressive disorder	<p>This article is about the discussion about relation between Insulin sensitivity and Depression. Depression is a psychiatric disorder which may alter the metabolic action of the body. Epidemiological studies shows that diabetes, CVS diseases and metabolic syndrome has relation with depression with higher prevalence. The depression types of Bipolar depression (BD), stress related depression (RD), major depression (MD) and insulin sensitivity relation is known. To know the relation 18-30yrs aged with BMI <25kg/m² are taken. Subjects who are depressed and with no familial history of Diabetes and are eligible if Fasting BSL <6.1mmol/l and PPB<7.8mmol/l. Relation of Plasma insulin, Cortisol, Adiponectin with depression disorder is assessed. Result: Generally, the severity of MD, BD is more in profoundness when compared with RD which shows high degree of neuroendocrine dysregulation. Compared to controls insulin sensitivity is significantly lower in MD and BD. Plasma Adiponectin levels was decreased in BD group when compared to control groups but not in MD groups. Result shows that there is an inversely relationship between both major and bipolar depression and insulin resistance in nonobese males of age 18-30yrs. ^[15]</p>
2.	Diabetes mellitus as a model of psychosomatic and somatopsychic interrelationships.	<p>The interrelation of physical and psychosocial factors is assessed with diabetes as a model. The Health-Related quality of life (HRQoL) is applied as screening tool to know the effectiveness.</p> <p>DM as biopsychosocial problem: The HRQoL is considered by all dimensions of personal functioning which includes physical, social, psychological factors. Type 1 DM and HRQoL relationship is determined by following: Social activity, occupation, longterm complications, decreased life expectancy, social difficulties, insulin therapy. In type 2 DM influence is based on following factors: Glycemic control, Stability/Instability of medication, Hypoglycemic states, Dm complications, severity of comorbid complications. The psychosocial variables considered are as follows:1. Depression anxiety, 2. Emotional and behavioral disturbances, 3. Stressful life events, etc;</p>

Psychosocial issues in DM: The psychological ground in DM is known through psychodiagnostic interview by an experienced psychologist. Anxiety symptoms are frequently associated with poor glycemic control. Anxiety disorders has increased risk on patients of DM. Generalized anxiety are diagnosed in an average of 14%Dm patients. 40%Dm patients manifest with Subclinical anxiety. Cognitive level: Causes, consequences, subjective prognosis are assessed. Affective level: Fear, anxiety, anger, resentment, depression, sorrow. Behavioral level: Physical activity, change of habits, Cognitive-affective-behavioral complex is related to DM in controlling glucose levels.^[16]

3. The Importance of Causative and Disease-Maintaining Factors in Homeopathic Analysis and Treatment.

Hahnemann after 11 years of effort discovered the Miasm. The causation and maintaining cause play an important role on chronic diseases. Too often physician jump to conclusion about remedy selection of the respective case without good knowledge of nature of case which may cause improper prognosis. To make a prognosis following elements are need to be considered: Depth of complaints, Nature of pathology, Personal Medical History, Family Medical history

CAUSATIVE AND MAINTAINING FACTOR: Occurrences in the past has a lasting negative influence and weakens defence mechanism. Chronologically noting down to gain better sequence. Following factors needed to be given importance:

LIFESTYLE: Disease-maintaining factors include eating habits, drinking habits, smoking, alcohol abuse, unhealthy residential environment, stress related to partner, family, work.

TRUAMA: Physical trauma such as injury, wounds; Emotinal trauma such as death of loved, divorced; Mental trauma such as spiritual or religious disappointment.

SUPPRESIVE VACCINATIONS: When a complaint is suppressed the defence mechanism is weakened and shifts to a deeper organs.

ACUTE INFECTIOUS DISEASES: Acute have a marked effect on the organism which can last for years causing negative effects on immune system.

HEREDITARY PREDISPOSITION: The maintaining cause of diseases called Miasm which had never cured becomes stronger as generations passed.

Each causative factor can have negative effect In case of many causative factors which block the energy complex of organism. Symptom pattern has

- not changed, then repetition of dose is needed and sometimes change, or higher potencies has to be prescribed.
- When causative factors are too many, it lead to change the pattern through a change of symptoms creating a new remedy layer, then different remedy is to be prescribed after the action of first remedy.^[17]
4. Alcohol consumption and type 2 diabetes. It is the Meta-analysis of epidemiological prospective Cohort studies for 20 years on both sex male and female who consumes alcohol continuously. 13 Cohort studies are included in this analysis who are diabetic. Studies are based on High alcohol consumption, Moderate alcohol consumption and low consumption of alcohol based on questionnaire information on alcohol in diabetic cases.
- Moderate alcohol consumption is defined as approximately 5-30g/day. High consumption is defined as >20g/day. Low consumption is approximately <5g/day.
- RESULTS: Moderate Consumption: Moderate alcohol was associate with the reduced risk of type 2 Diabetes in the order of 30% compared to low consumption and abstention. The reduced risk-maintained persistence after adjustment of certain factors like age, body-mass, physical activity, family history of diabetes, socioeconomic group, diet.
- High Consumption: High consumption of alcohol shown increased risk on comparison with moderate consumers.
- But comparison is less clear with less/abstainers.
- Meta-analysis results are limited as they involve pooling risk estimates from studies due to different methodology, sample setting. Other considerations that to be given importance are as follows; 1.Different reference categories, 2. The measure of low, high, moderate consumption of alcohol may varies, 3. Relative risk estimates are not adjusted , 4.Different studies have different questions to know the measure of alcohol intake, 5.Inclusion of all studies of alcohol and diabetes is not possible due to the differences in methodologies.^[18]
5. Putting paid to diabetes-related distress: The potential utility of the problem areas in diabetes This article by Jaya Reddy et.al, discussed about the Diabetes related distress based on PAID scale to know how it interferes with glucose control.
- Depression and Distress are reported negative effects in people with Diabetes and influence glycemc control. The distress is divided as Diabetes related distress and General distress. Few studies are mentioned in the
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<p>(paid) scale in patients with diabetes.</p>	<p>article regarding psychological entity in DM; impact of past depression on DM; H/o depression in postmenopausal women with DM has high HbA1c. To know the relationship between past & current depression, DM-related distress and HbA1c levels this article is aimed. PWD Studies are done from diagnosis, stages of illness, screening for symptoms of depression. Written Consent is taken from patients with Diabetes by research assistants and investigated by following questionnaire: PHQ (Patient Health Questionnaire): Panic disorder, Anxiety disorder, Depressive disorder, eating disorder, alcohol dependence, major depression, somatization disorder to know severity on a scale 0-27. K10 Scale(kessler-10): A self-rated scale which measures symptoms of Psychological distress for past 30 days. SF112 (Short Form Health survey): It's a questionnaire that rates quality of life with low score indicating poorer health. PAID: It is designed with items to measure emotional responsiveness; Food related problems, social support related problems, emotional distress are rated on the scale. High score indicates greater emotional distress. RESULT: PWD with H/O past depression has high PAID scores. This may be due to premorbid psychological vulnerability or due to lingering depressive symptoms. After 3-6 months, there is a improved PAID scores with decreased DM specific Distress by having discussion with doctors. Stress triggers HPA axis and results elevated glycemic levels which results in elevated HbA1c levels. DM stress in Type 1 DM are about DM complications, hypoglycemic reactions. Whereas in Type2 DM its regarding lack of goal setting and food intake, complications. SCREENING: Both Clinician and Diabetic patients should discuss about emotional issues in context of DM related distress where PAID offers an opening point for discussion. The PAID screens for Chronic DM related distress patients and also allow people to raise emotional aspects of their DM care.^[19]</p>
<p>6. Cigarette smoking and diabetes mellitus: Evidence of a positive association from a large prospective cohort study</p>	<p>It is the article regarding the association between smoking and DM. Heavy smokers >1 pack/day who were young male & women and were great consumption of fat and alcohol. All the individuals in study were having sedentary life.</p>

- Generally smoking increases insulin resistance and alters intracellular glucose transport or may decreased vascular blood flow.
- Proportional hazards analysis is used to estimate Incidence density ratio (IDR) which is a measure to know the relation between the exposure and diabetes incidence. IDR is 1.43 in men who smoked >2 packs whereas IDR is 1.00 who has never smoked. Among individuals who had never smoked and who are obese had high rates of Diabetes (IDR-3.56) when compared to normal weight and non-smoker. (IDR-1.83). Men who smoked >2 packs per day have increased rate of DM by 40% in all BMI categories. For women, DM IDR values are as follows; <1 pack/day-0.98, 1-1.99 packs/day-1.20, >2 packs/day-1.74. Women who are obese, overweight are seen to have increased risk of DM. Repots shows increased risk in Diabetes at similar rate for all categories of BMI for heavy smokers.^[20]
7. Sedentary lifestyle and body composition in type 2 diabetes.
- This is the article that shows about the relation between Body composition in Diabetic people who are leading sedentary life. 402 individuals are selected with BMI >24kg/m². A questionnaire which is self-designed is given to know the
- Medical History which includes DM duration, H/o Hypertension, Dietary habits, Smoking, Drinking habits. Also, their medications are taken into consideration.
 - Sedentary time: The Sedentary time is divided into 3 sub categories as Low sedentary time (LST-<4hrs); Middle Sedentary time (MST- 4-8hrs) High sedentary time (HST- >8hrs);
 - Demographic data which includes, Age, BMI, Sex, Height, weight, BP, waist circumference (WC)
- There were 109 LST (27.1%), 129 MST (32.1%) and 164 HST (40.8%) participants.
- RESULTS: The duration of Diabetes is seen increased with increase in sedentary life. The Sedentary time is positively and independently corelated to Body Fat and Trunk Fat. Sedentary time is negatively corelated with Limb skeletal mass, femoral neck bone mineral density (FN-BMD).
- The mean differences in B-FAT, T-FAT, and total bone mineral density (T-BMD) between the LST (8 h) group were 2.289 (0.630 to 3.948) %, 2.338 (0.594 to 4.082) %, and - 0.112(- 0.138 to - 0.086) g/cm² , respectively.
- CONCLUSION:
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- As per other studies, increased abdominal fat deposition is seen in 72% of Type 2 DM individuals. There increased risk of DM by 15% in men and 19% in women per 1kg increase in Body fat. The risk prevalence of DM is increases by 51% in men and 44% in women if there is 1kg increase in lower limb fat. Sedentary Lifestyle in Type 2 DM patients may leads to increase in Total body & Trunk fat and decreases Limb Skeletal mass and (FN-BMD) which shows its correlation in Body Composition in T2DM individuals.^[21]
8. An analytical study of the role of lifestyle changes in the development and management of Type 2 Diabetes mellitus in Kerala: A Homoeopathic approach.
- Sushy Charles et al., made sense of that Diabetes an "iceberg illness" is a significant general medical issue everywhere. The pervasiveness of Diabetes mellitus changes among various populaces, being extremely high to the degree of 40% of every one of those over the period of 15yrs. Constantly 2025, the quantity of individuals experiencing diabetes on the planet is assessed to be 350 million, of which 70 million will be in India. Type 2 Diabetes is the most well-known type in India, representing over 95% of the aggregate. The urbanization and industrialization of the world assume a significant part being developed of diabetes, the pace of development of diabetes increments step by step. Whenever the wellbeing of this specific gathering falls apart, it is the general improvement of the country endures. As per the World Health Organization, 171 million individuals overall or 2.8 level of the worldwide populace experience the ill effects of Diabetes Mellitus. Its frequency is expanding quickly, and it is assessed that by 2030, this number will practically twofold. A significant that inclines diabetes mellitus is heftiness the cutting-edge plague stationary way of life. Actual idleness found to make an amicable condition for diabetes mellitus. Sweet food varieties, wealthy in refined carb, ate as often as possible will expand the interest in insulin emission. High admission of dietary fiber will lessen the degree of blood glucose. Avoidance is superior to fix along these lines, the dynamic quest for infection among obviously solid individuals is the basic part of counteraction which is typified in screening. Screening test is suggested in light of the fact that an enormous number of asymptomatic diabetics are uninformed that they have the issue. Counteraction suggested in different levels, first degree of avoidance i.e., essential anticipation in the phase of openness of hazard factors which incorporates changing in the eating regimen, altering inactive life to fit genuinely. When the sickness is analyzed, a definitive point is to keep up with the ordinary sugar level and
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guarantee ideal body weight i.e., optional anticipation. The tertiary degree of counteraction is the anticipation of entanglements. A significant pretended by government is to lay out the different diabetic facilities for the administration of such cases. Diabetes influences the most useful time of life, and it will smother the thriving of an entire country. Homeopathy plays an extraordinary part to play in the anticipation or the board and control of diabetes mellitus as well as in diminishing bleakness and mortality coming about accordingly. By appropriate determination and organization of homeopathic medications diminishes the event of diabetes cases and reasonable organization defer the difficulties. Way of life changes as an assistant to Homeopathic drugs are undeniably more powerful in the decrease of FBS. Appropriate comprehension of homeopathic idea of infection and protected treatment can carry incredible alleviation to enduring mankind.^[22]

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