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Review Article

THE IMPORTANCE OF HBA1C TEST IN PREDIABETES WITH SPECIAL REFERENCE TO *PURVARUPAVASTHA* OF *PRAMEHA*-A LITERARY REVIEW

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ABSTRACT

Diabetes mellitus is a metabolic disorder causing hyperglycaemia with defect in metabolism of carbohydrates, fats, and proteins due to defect in insulin secretion, or its utilization or both. Prediabetes is a condition in which the blood glucose levels do not meet the criteria for diabetes or too high to be considered normal (ADA). It is an early stage of DM. So it is important to diagnose Diabetes Mellitus type 2 in the previous stage that is prediabetes. It is already in practice to diagnose it with laboratory blood tests. But additionally, we can also take help of *Prameha purvarupas* as premonitory symptoms in patients prediabetes. HbA1C is a useful parameter to diagnose prediabetes. There is mild or no symptoms mentioned for prediabetes. *Purvarupas* of *Prameha* mentioned in Ayurvedic samhitas can be useful to know early stage of Diabetes mellitus type 2, clinically. The purpose of this article is to highlight the importance of *Purvarupa* of *Prameha* to diagnose prediabetes. So, the need of hour is to focus on screening and diagnosing pre-Diabetes earlier, by spreading knowledge and awareness among society which will play a key role to reduce the conversion of pre-diabetes to diabetes mellitus.

INTRODUCTION

In *Ayurveda,* all *Vyadhis* are explained through *Nidanpanchak*. The manifestation of each *Vyadhi* is a result of *Samprapti*, i.e., pathogenesis. *Purvarupa* is an important factor of *Nidanpanchak*, in which certain clinical features (A*vyaktalakshanas*) are seen before the manifestation of disease and it gives an opportunity to the patient in which he can adopt proper preventive and precautionary measures. That can help to reduce the probability of conversion to the disease.

The *Pratyatmalakshan* of *Prameha* is *Prabhutmutrata* (Excessive and frequent urination) and A*vilmutrata* (Turbid or copious urination) [1].

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In *Charak samhita* 20 types of *Prameha* are described according to the involvement of *Doshas* of which 10 types of *Kaphaja prameha* are *Sukhasadhya*, 6 types of *Pittajprameha* are *Yapya* and 4 types of *Vataj prameha* are *Asadhya*[2]. If the patient of *Prameha* didn't take proper treatment or continue sedentary lifestyle and unhealthy diet, the disease may get deteriorated and can convert to *Madhumeha* which is said to be *Asadhya. Kaphaj* and *Vataj prameha* can also get converted to *Madhumeha* due to the chronicity of disease. The stage before the manifestation of *Prameha vyadhi* is the *Purvarupavastha* of *Prameha*. *Prameha purvarupas* are included in *Medovahastrotodushti* and elaboratively described in our *Samhitas*. This *Avastha* is very much helpful in the early diagnosis of the disease and prevention of it.

Aims and objective

1. To review and compile the *Purvarupavastha* of *Prameha* from *Ayurvedic* literature.
2. To review prediabetes, HbA1C test and its diagnostic importance from modern texts.

Methodology

Review of *Brihattrayi (Charak Samhita, Sushruta Samhita & Vagabhatta), Laghutrayee (Bhava Prakash, Madhav Nidana, Sharangadhara Samhita)* have been carried out to elaborate the *Purvarupavastha* of diseases and to compile the classical features of *Purvarupaavastha* of *Prameha*. In addition to this, various classical *Chikitsagranthas* (Medicine books) of *Ayurveda* like *Yogaratnakara, Vangasen samhita, Kashyap samhita, Bhelasamhita, Harita samhita* has been also reviewed to prepare a comprehensive data of *Purvarupaavastha* of *Prameha*. Review of literature for prediabetes and HbA1C is done from modern texts, internet sources and related published articles.

Purvarupa

Purvarupa are the prodomal symptoms of diseases in future. Their onset is before complete manifestation of disease. They suggest the impending illness. During the course of the *Samprapti* of an illness, the morbid *Dosha*s circulating all over the place in the body tend to localize in an area and produces some of the unique symptoms and is referred by the name *Purvarupa*. If all the *Pramehas* are neglected then they land up in *Madhumeha.*

In the context of P*rameha*, the presence or absence of *Purvarupa lakshanas* helps us to differentiate it from R*aktapitta. Sushrutacharya* says that if all the *Purvarupa* are present in patient and if the patient notices increased, then the chances of that patient to suffer from *Prameha* in near future are more. Different *Purvarupas* have been stated in *Brihattrayi* i.e., *Charaka samhita* [1,2] *Sushrut samhita*[3], *Ashtang hriday* [4], *Ashtang sangraha* [5], *Laghtrayi,* i.e. *Madhav nidan*[6], *Bhavprakash* [7], and other *Granthas* i.e., *Yogratnakar*[8], *Vangsen samhita* [9], *Bhel samhita.*

Acharya Kashyap has described about *Prameha* in the context of "*Vedanadhyaya"* but has not mentioned anything about *Purvarupa avastha* of *Prameha* in this *Adhyaya*[10].

Acharya Sharandhara has not described anything about *Prameha. Acharya Harita* has described about *Prameha*, its classification, and treatment but has not described anything about *Purvarupa avastha* of *Prameha* in *Harit samhita*.

Acharya Bhela has not described anything about *Purvarupa avastha* of *Prameha* [11].

Compilation table of *Prameha purvarupa*

Purvarupa	***Ch.***	***Su.***	***A.H.***	***A.S.***	***M.N.***	***Y.R.***	***V.S.***	***B. P.***
Sweda and *Swedagandha* (Excessive sweating and foul odour of the body)	+	–	+	+	–	–	–	–
Anga shaithilya	+	-	+	-	-	-	-	-
Anga sada	-	+	-	-	-	-	-	-
Dehachikkanata (Glossiness over the skin of the body)	-	-	-	-	+	+	+	+
Shayya sukherati (desire to sleep)	+	+	+	+	-	-	-	-
Swapna sukherati (desire to sleep during day)	+	++	+	+	-	-	-	-
Asana sukherati (desire to sit)	+	+	+	+	-	-	-	-
Hridayopadeha (feeling of coating over heart)	-	-	+	-	-	-	-	-
Netropadeha (feeling of coating over eyes)	-	-	+	-	-	-	-	-
Jihwopadeha/Jivha malotpatti (feeling of coating over tongue)	-	+	+	-	-	-	-	-
Shravanopadeha (feeling of coating in ears)	-	-	+	-	-	-	-	-
Taluni malotpatti (feeling of coating over palate)	-	+	-	-	-	-	-	-
Gale malotpatti (feeling of coating over throat)	-	-	-	-	-	-	-	-
Danteshu Malotpatti/Mala kaya	-	+	-	-	+	+	+	+
Maladhikyam bahi kaye	-	-	-	+	-	-	-	-
Kesha ativriddhi (excessive growth of hair)	++	++	+	+	-	-	-	-
Nakhaativriddhi (excessive growth of nails)	++	+	+	+	-	-	-	-
Kesheshu jatili bhava (Matting of hair)	+	+	-	+	-	-	-	-
Shita priyatvam (liking of cold things)	+	-	+	+	-	-	-	-
Gala (Kantha), Talu shosha (dryness of throat & palate)	+	-	+	+	-	-	-	-
Asya madhurya (Sweetness in mouth)	+	-	+	+	+	+	+	+
Kar (Hasta)-Pada daha (burning sensation of palms and soles)	+	+	+	+	+	+	-	+
Madhur mutrata (sweet test in urine)	-	+	-	+	-	-	-	-

Shukla mutrata (white coloured urine)	-	+	_	+	-	-	-	-
Snigdhagatrata (unctuoness of body)	-	+	-	+	-	-	-	-
Picchilagatrata (sliminess of body)	-	+	-	+	-	-	-	-
Ghana angata /Guru gatrata (heaviness of body)	+	++	--	-	-	-	-	+
Pipasa (thirst)	+	++	--	+	+	+	-	-
Shvasa dourgandya (foul smelling of breath)	-	+	-	+	-	-	-	-
Sarvakal tandra (dozing)	+	++	-	+	-	-	-	-
Kara-pada suptata (numbness of palms and soles)	+	-	-	-	-	-	-	-
Angeshu suptata (numbness in body)	+	-	-	+	-	-	-	-
Alasya (laziness)	+	-	-	+	-	-	-	-
Kayachidropadeham	+	-	-	+	-	-	-	-
Sarvakalenidra (sleeping for long-time)	-	-	-	+	-	-	-	-
Shatpada/Pipilikamootre/Sharireabhisaranam/Mutrebhi dhavanti pipilikasch (attraction of ants towards urine and body)	+	-	+	+	-	-	-	-
Visra sharirgandha (smelling of body like fish)	+	-	+	+	-	-	-	-
Visra mutra gandha (smelling of body like fish)	-	-	-	+	-	-	-	-
Paridahangeshu (burning of body)	+	-	-	-	-	-	-	-
Kaye malam	+	-	-	+	-	-	-	-
Mutre cha mutra dosham (Presence of other *Doshas* in urine)	+	-	-	-	-	-	-	-
Swasa (dyspnoea)	-	-	-	+	-	-	-	-
Trut (excessive thirst)	-	-	-	-	+	+	+	+

Prediabetes

Diabetes and its complications have increasingly become major causes of morbidity and mortality in worldwide. The term non-insulin dependent diabetes mellitus, i.e., Type 2 DM is a metabolic disorder caused due to disturbance in carbohydrates, fats, and proteins metabolism, due to insulin defect.

Various organizations have defined prediabetes with criteria that are not uniform.

According to WHO, the impaired fasting glucose (IFG) and impaired glucose tolerance (IGT) are two important changes are observed in prediabetes. It is a state of intermediate hyperglycaemia. As per WHO, the fasting plasma glucose (FPG) levels of 6.1 to 6.9 mmol/L or (110 to 125 mg/dL) and two hours plasma glucose levels of 7.8 to 11 m mol/L or (140 to 200 mg/dL), after consuming oral glucose load of 75 gms. or combination of these two based on 2 hourly OGTT (Oral glucose tolerance test) is the parameter for prediabetes.[12] According to the ADA i.e., American diabetes association, the value of impaired fasing plasma glucose (FPG) as (100 to 125 mg/dL) and impaired glucose tolerance (IGT) as (140 to 200 mg/dL) and along with this, HbA1C level of 5.7% to 6.4% is also the criteria for the diagnosis of prediabetes. [13]

Prediabetes is an early stage of diabetes. The patients of prediabetes have glucose levels (Fasting and PP) increased than normal but sometimes may not show any symptoms.

Prediabetes is a stage, in which the blood sugar levels in an individual do not meet the criteria for diabetes but are too high to be considered as normal. (ADA). These patients have high risk of getting diabetes. Diabetes Mellitus is a silent killer and it is known to affect many systems slowly as a complication in a long run or not controlled in time. Due to increase in sedentary and unhealthy lifestyle, it is becoming the epidemic of 21st century, over last 30 years. In India, 77.2 million people are suffering from pre-diabetes. Diabetes is the most common metabolic disorder and is a major public health challenge of the twenty-first century. International diabetes federation (IDF) shows that 285 million adults (20-79 years) are affected by this disorder in 2010. The global prevalence of IGT in 2010 was 343 million (7.8%) ranging from 5.8% in South East Asia of the nation's total population. India is said to be the "diabetes capital of the world", having the maximum number of diabetes in the world according to the survey in 2013. it will reach to 438 million in 2030 according to International Diabetes Federation.

Prevalence of diabetes and prediabetes is 12. 1% and 14% respectively. Due to many factors like lack of regular health check-ups, lack of knowledge regarding health awareness there are many cases of undetected prediabetics. They are unaware of this.

India is one of the countries having maximum diabetic patients in global diabetic population. India is an ideal model of health care having ancient science of life like Ayurveda as well as many pathies, still the prevalence of diabetics as well as prediabetics is more.

Progression to diabetes

The conversion rate of individuals from prediabetes to diabetes changes with population characteristics and the criteria used to define prediabetes[14,15]. In a meta-analysis evaluating the progression of prediabetes to diabetes published in 2007, the annual incidence rate of diabetes was found to be 4%-6% for isolated IGT, for isolated IFG 6%-9% and for both IGT and IFG was 15%-19% [16]. This analysis consists the studies done before 2004. In majority of studies, the annual rate of conversation of patients from prediabetes to diabetes is same.

Hence, early diagnosis is important to prevent the manifestation and complication of diabetes. It can achieve by diagnosing early stage at the time of *Purvarupaavastha* (Prodromal stage) of *Prameha*. The *Ac*haryas of *Ayurveda* had also described about the *Purvarupaavastha of prameha* in their respective *Samhitas* (classical text of *Ayurveda)*. These prodormal features of *Prameha* are very much similar to the symptoms of DM -2, which can be seen in its earlier stage in mild and few manner. These typical similarities will be helpful to diagnose the case in earlier stage and to prevent further complications.

Prediabetes is an early stage of diabetes. Its detection is done on the basis of different investigations. Also, it can be diagnosed clinically by assessing the *Purvarupa* (premonitory symptoms) of *Prameha* in patients, as described in *Samhitas*. So they will be helpful for early diagnosis of *Prameha* and to prevent the disease and its complications.

Abnormal glucose homeostasis including impaired fasting glucose, impaired glucose tolerance, or both is an important state in prediabetes. Prediabetic individuals have higher risk for DM-2, as compared to healthy individuals having normal fasting plasma glucose, i.e., less than 100 mg/dL (5.6 mmol/L). In prediabetes there are many etiologies due to metabolic derangement including insulin resistance (IR), hyperglycemia, dyslipidemia (altered lipid profile), hypertension (HT), systemic inflammation, and oxidative stress. So, there is a high risk of cardiovascular disease in prediabetes.

Etiology

The following factors put the patient at greater risk of developing prediabetes:

- **Unhealthy diet -** Processed foods and unhealthy diet rich in sugar and carbohydrates, raise the blood pressure and LDL level, or "bad cholesterol" in addition to blood glucose, increasing the risk of developing prediabetes.
- **Excess weight-** Overweight people are at a high risk for developing prediabetes. Especially people carrying a lot of extra fat in abdomen, i. e. visceral fat is responsible to cause insulin resistance.
- **A sedentary lifestyle -** Being very inactive or lacking of physical exercises contribute to insulin resistance and weight gain, both of which then leads to prediabetes. So, changes in lifestyle should be made and priority should be given to daily exercises, brisk walk etc.
- **A family history -** Prediabetes has a hereditary factor. The risk of prediabetes is increased with a family history in maternal or paternal side. Prediabetes is also affected due to genetic component due to race. In racial disparities, person developing diabetes have more to do with economic status and the availability of health services and healthy eating habits and food than genes involvement.
- **Gestational diabetes history-** There is a high risk for prediabetes and type 2 diabetes in patients having diabetes during pregnancy.
- **Smoking-** The sensitivity of cells to insulin is decreased due to the nicotine in cigarettes. It raises the glucose in blood. The inflammation is caused and the cells become harder to absorb insulin due to other chemicals in the cigarettes.
- **Advanced age**- As age increases, the likelihood of developing prediabetes starts to rise. By retirement age, almost 25% of seniors over 65 have prediabetes.
- **Dyslipidemia** -with levels of HDL cholesterol less than 40mg/dL (men) or less than 50mg/dL (women)or triglycerides more than 250 mg/dL.
- **Other factors -**like hypertension, physical inactivity, polycystic ovarian syndrome.

Pathophysiology of prediabetes

Insulin is a hormone in pancreas that helps body to convert glucose into fuel. When we eat a meal, the carbohydrates in food are converted into glucose, otherwise known as blood sugar. That glucose stays in the bloodstream until pancreas releases insulin. The insulin acts like a key that opens the cells to allow the glucose to enter, where it's then used to fuel by body. Without insulin or when insulin is not working effectively, the glucose stays stuck in your bloodstream and accumulates, causing hyperglycemia.

In NIDDM, the pancreas can still produce insulin, but that insulin gradually becomes less effective at helping the glucose into the cells. Prediabetes is an indicator of body to show that it is beginning to stop using insulin as efficiently as it should, which is called insulin resistance (IR). Due to insulin resistance, the glucose levels in blood increase,

giving rise to prediabetes and, it progresses to type 2 DM if left neglected.

The pathophysiology of prediabetes is relatable to that of Diabetes Mellitus as it is pre stage of DM. Hyperglycaemia will cause pancreatic beta cell to produce and release more insulin. Excessive insulin secretion for a longer period will result in diminishing the response of insulin receptors. The function of insulin receptors is to open the glucose channels for the glucose entry into the cells. This decreased function of insulin receptors results in hyperglycemia. It again causes metabolic disturbances. It then leads to Diabetes mellitus type 2 as well as metabolic syndrome. This pathology is not that much extensive in prediabetes as in DM-2, but is the onset in a metabolic cascade which can turn into severe consequences if not properly taken care of. In this stage the treatment and the other precautionary measures should be started earlier. [17] It can affect the large and small vessels i. e. the arteries of brain, cardiovascular system, eyes, vital organs and nerves also if proper treatment is not started in time.

Symptoms of prediabetes

Prediabetic patients may show either no symptoms at all, or some slight or very gradual symptoms which may remain unnoticed for many years. Some symptoms due to Insulin resistance can develop in patients. Sometimes, though, there are warning signs like:

- Increased thirst
- Increased hunger
- Fatigue
- Unexplained weight loss, even if eating more
- Frequent urination

More urination makes the patien dehydrated, resulting in developing symptoms like increased hunger and thirst. erectile dysfunction (ED) and decreased sex are also some issues regarding prediabetes.

Complications

As such, there are no complications of prediabetes. If it is not get diagnosed on time or left untreated, it can convert into type 2 diabetes, which can severe complications like hypertension, nephropathy, neuropathy, retinopathy, stroke, skin, fungal infections, gangrene, impotency etc.

Diagnostic tests

Blood sugar level is the diagnostic criteria for diabetes. Blood is checked for fasting plasma glucose (FPG) and two hourly glucose by oral glucose tolerance test. Diabetes is diagnosed by checking blood sugar levels. These tests shows progressive changes in glucose tolerance. This may lead to vascular complications. Additionally, HbA1C test is also important for the diagnosis of diabetes and prediabetes. There is a strong association is seen between hyperglycemia and microvascular or macrovascular diseases. The HbA1C test has higher reproducibility and is done in a non-fasting condition and so convenient for patients for regular checkups. This is the advantage of this test over other conventional tests. National Health and Nutrition Examination Survey (NHANES) over 1999–2006, has recommended it.

The following tests can be used to screen for prediabetes

12 hour Fasting blood glucose levels: In prediabetes, fasting blood glucose level is 100 mg/dL to 125 mg/dL. The level above 126 mg/dL is considered as diabetes.

Two-hour glucose tolerance test: The blood glucose level of 140 mg/dL to 199 mg/dL, 2 hours after ingestion of 75 g of glucose, indicates prediabetes.

A glycated hemoglobin test (hemoglobin A1C) is the average blood glucose level for the last 3 months. 5. 7% and 6. 4% readind suggests prediabetes. A random plasma glucose test measures blood glucose levels at any time; if the blood glucose levels fall between 140 mg/dL to -199 mg/dL, it may be indicative of prediabetes. For accuracy of the test, follow ups are required. Patients should start screening between 30 to 45 years of age, every 3 years. In high-risk patients having strong family history or other risk factors like obesity etc., the screening should be initiated earlier and follow-ups are taken more frequently.

Glycated hemoglobin (A1C) test

New clinical practice recommendations include A1C as an alternative to fasting glucose as a diagnostic test for identifying prediabetes. In HbA1C test, the blood glucose is measured with the help of glycated hemoglobin. “Hemoglobin is a protein within red blood cells. When glucose enters into bloodstream, it binds to hemoglobin which is a protein in the RBCs. This process is called glycation. The amount of glycated hemoglobin increases with the higher quantity of glucose entering into the bloodstream.

Recommendation of the test

The case for HbA1C as a diagnostic test was put forward as early as the mid-1980s, but concerns regarding its availability and poor assay standardization prevented its uptake[17]. It wasn’t until 2009 that an international expert committee recommended HbA_{1c} be introduced into diagnostic criteria at a threshold level of ≥48 mmol/mol (≥6.5%). [18] This recommendation was adopted by the American Diabetes Association (ADA) the following year and more recently by the WHO.

The test for A1C, or hbA1c, now-a-days called as estimated average glucose (eAG), is a non-fasting

blood test. The average amount of glucose attached to haemoglobin protein in the RBCs in the blood, is measured in percentages during the last three months. If blood sugar levels will be high, more glucose will attach to the haemoglobin. The increasing glucose binds to the hemoglobin in RBCs. The HbA1c test measures this binding amount of glucose. The life span of RBCs is about 3 months, so the result of the test interprets the average glucose in blood for the past 3 months.

According to the American diabetes association the normal HbA1C level is below 5.7 % and 5.7 to 6.4 % suggests prediabetes, and the level above 6.5 % signals diabetes. The criteria for prediabetes are not uniform stated by WHO and ADA.

HbA1C test methods

The HbA1C test involves a sample of blood test that is tested for glycated haemoglobin using any of the following methodologies

- High performance liquid chromatography (HPLC)
- Immunoassay
- Enzymatic
- Capillary electrophoresis
- Boronate affinity electrophoresis

Of these all, HPLC is the gold standards for HbA1C determination because it allows identification of abnormal haemoglobins that may reduce the half-life of haemoglobin and thus cause erroneous interpretation of results.

Glycated haemoglobin (HbA1c or HGBA1c) is a hemoglobin which measures the average plasma glucose concentration during prolonged periods. It is seen that it is formed in a non-enzymatic glycation pathway when hemoglobin is exposed to plasma glucose. HbA1c is a measure of the beta-N-1-deoxy fructosyl component of hemoglobin. HbA1c is the haemoglobin which is irreversibly glycated at one or both N-terminal valines of the beta chains. It is the mostly used and accepted test to monitor the glycaemic control in diabetic persons. When a haemoglobin molecule is glycated, it remains in the RBC for the rest of its life-span i.e. (120 days).

HbA1c test is used to check control in diabetic patients. In normal adult blood, chromatography of Haemoglobin A1 and haemoglobin A1c is divided in two parts: (92 to 94%) of HbA (HbA0) and (6 to 8%) of HbA1. The B chain has an additional glucose group. There are three different glycations of HbA1. The isoelectric focusing or electrophoresis method is used to measure HbA1c. During the lifespan of RBC i.e., 120days, the glycation of haemoglobin occurs at a variable, non-linear rate over time. The mean glucose level over the previous 120 days shows the relative proportion of HbA1C. The normal range of many laboratories differs depending on the method of the test and depending on whether HbA1 or HbA1c is measured in the test.

Overall HbA1c is a reliable indicator of diabetic control. There are some exceptions like some conditions or pathologies in which the average life span of RBCs is significantly less than its normal duration i.e., 120 days. In such situations as 50% of glycation occurs in 90-120 days, it gives low HbA1c results. There are other common causes also. They are as follows:

a. Conditions in which red cell turnover is increased like blood loss, haemolysis, haemoglobinopathies and red cell diseases, myelodysplastic disease.
b. Depending upon the test used, there may be interference with the test like persistent fetal haemoglobin and haemoglobin variants, carbamylated haemoglobin in uraemic patients.
c. Glycated haemoglobin readings may be misleading in patients having very high to very low fluctuations in glucose levels. So, the test results should be compared with other conventional tests in such case.
d. In patients who are having normal blood reports by conventional tests can be identified by HbA1C test.

DISCUSSION

A prediabetic person may not always show symptoms. In fact, the majority don't. Oftentimes, an asymptomatic person will only get a prediabetes diagnosis if they get their blood glucose or hbA1C get checked and finds an atypical result.

For this reason, one of the most important things to do is to get a physical exam with blood work done once every year. It can tell if glucose levels are too high, or not heading in the right direction as far as controlling them before developing type 2 diabetes.

Although most people don't show noticeable symptoms of prediabetes, some may experience fatigue, excessive hunger, excessive thirst, and frequent urination as an alarming sign and it's better to be safe by investigating blood. By analyzing the data of *Pramehapurvarupa*, it is found that the features like *Kara-pada daha, Mukhamadhurya & Mala kaya* are common features described by all *Acharyas.* The other common features like *Pipasa, Mukhashosha, Visra-gandhatwa, Jatilabhabakesha, Kesha-nakhavriddhi, Tandra* have been described mostly by *Brihattrayi.*

CONCLUSION

A prediabetes diagnosis can seem scary, but it's really an opportunity to take control of your health before there are any serious consequences. Metabolic disorder like Diabetes Mellitus is increasing like a rapid fire in the society as it affects all the age groups &

all social economic groups. So, it is quite difficult to save the society from Diabetes Mellitus if the diagnosis and treatment procedure are delayed. So, the need of the hour is to screen the common people in terms of awareness programme in both urban & rural areas. *Purvarupas* of *Prameha* (prodromal features) are described in *Ayurvedic samhitas, (Brihattrayi* and *Laghutrayi)*. If the prediabetes is detected earlier on the basis of diagnostic test Hba1C and clinically, by examining the *Purvarupas* of *Prameha* in patients, then it will be very much useful for early detection as well as prevention before the manifestation of disease and its complications. So, the Prodromal features of *Prameha* can be screened earlier and appropriate treatment will be given by holistic method as mentioned in *Ayurveda*. Inputs from *Ayurveda* may bring a shift in diabetic patients with its early clinical diagnosis, preventive and precautionary adaption of lifestyle and complication prevention.

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