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Importance of Stress Factor in *Prameha*

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ABSTRACT

Prameha is burning problems of the decade. According to the latest data from World Health Organization, a Global estimate of 422 million adults is living with Prameha. It belongs to the category of chronic Non-Communicable Diseases (NCD) *Prameha* more specifically *Madhumeha* can be correlated to the features of Diabetes mellitus. Considering the etiology of Diabetes mellitus, Stress has been found to have a prime place. It not only acts as an etiological factor but also as a triggering factor. Today stress has become an inevitable part of modern life. In today's materialistic world, there is unhealthy competition in every field and man is compelled to act like a machine. This deteriorates the equilibrium of mind and the person comes under the influence of stress.

Key words: *Stress, Prameha, Diabetes mellitus, Sahasa, Ayurveda*

INTRODUCTION

Diabetes mellitus is a group of lifestyle metabolic disorders characterized by chronic hyperglycemia associated with disturbances of carbohydrate, fat and protein metabolism due to absolute or relative deficiency in insulin secretion and/or action. The hormone insulin moves sugar from the blood into the cells to be stored or used for energy. In diabetes, body either doesn't make enough insulin or can't effectively use the insulin it makes.[3,4]

Prevalence

The number of people with diabetes mellitus in India has increased from 26 million in 1990 to 65 million in 2016. According to the 2019 National Diabetes and Diabetic Retinopathy Survey report released by the Ministry of Health and Family Welfare, the prevalence was found to be 11.8% in people over the age of 50.

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Types of Diabetes

1) Type 1 Diabetes mellitus

The previously used terminology is Insulin Dependent Diabetes Mellitus (IDDM). It is also called juvenile-onset diabetes, since it often begins in childhood and adolescence.

The genetic factors, autoimmunity and environmental factors play a role in causation and precipitation of Type I DM. People with type 1 Diabetes mellitus have a higher risk of heart disease and stroke.

2) Type 2 Diabetes Mellitus[3.5]

The previously used terminology is Non-Insulin Dependent Diabetes Mellitus (NIDDM). It is the most common type of diabetes. The pathophysiological basis is that the cells of the body become resistant to insulin (insulin resistance). Insulin works like a key to let glucose (blood sugar) move out of the blood and into the cells where it is used as fuel for energy. When the cells become insulin resistant, moving sugar into the cells requires more and more insulin, and too much sugar stays in the blood. Over time, if the cells require

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more and more insulin, the pancreas can't make enough insulin to keep up and begins to fail. Type 2 diabetes is further classified into obese and non- obese types.

Other types include Gestational Diabetes Mellitus (GDM), Maturity-Onset Diabetes of the Young (MODY) etc.

Etiology[2]

- Weight. The more fatty tissue, the more insulin resistant cells become.
- Inactivity
- Family history
- Race or ethnicity
- Age
- Pregnancy
- Polycystic ovary syndrome
- High blood pressure
- Stress

Stress is proved to be a potential contributor to chronic hyperglycemia…How?

Stress can be of two types - Eustress and Distress

Eustress - The individual is able to cope with it and it improves the performance.

Distress - The individual is unable to cope with it and it forms the major etiology for diseases like Hypertension, Migraine, Ulcerative colitis, Diabetes mellitus, Coronary Artery Disease, Peptic Ulcer, Asthma etc.

In this article, we are dealing with Distress[3]

Blood sugar levels are controlled by two groups of hormones. First group include insulin which reduces the sugar level. Second group include cortisol, adrenaline, noradrenaline, glucagon and growth hormone which increases the blood sugar. Stress tends to increase the level of counter regulatory hormones especially cortisol, adrenaline and nor adrenaline which can precipitate diabetes in a predisposed individual or worsen the condition in someone who already have this disorder. i.e., In a diabetic person, increase in glucose which is induced by stress cannot be metabolized properly.

Again, the onset of diabetes mellitus can be a factor of stress in daily life which inversely affects the glucose metabolism thereby increasing blood sugar level. High as well as low sugar level affects mood. High sugar level may cause nervousness, anxiety and confusion and vague thinking. Low sugar level contributes symptoms like Euphoria, confusion, difficulty in co-ordination and decision making, aggressiveness and irritability, personality and behavior changes, low concentration level etc. Euphoria is produced by the hormone Adrenaline in an attempt to convert any available glycogen in liver back to glucose.

The mental health condition in Diabetes is called as Diabetic distress. This, condition share features of depression, anxiety and stress which affect the quality of life of patient. The reason for distress may be the person's concern about the responsibilities of managing the lifelong disease and worrying about it's potential complications. The rigorous insulin schedule might disrupt person's daily routine. The concern about missing a dose is a factor. The need to make dietary adjustments and checking blood sugar regularly can add to stress. The feeling that the disease may interrupt leisure and relaxation time lead to further anxiety and depression. The person become more frustrated and tensed which cause mood swings and thereby cause conflict in relationships. High blood sugar leads to sexual problems especially erectile dysfunction in males which reduce the enjoyment of sexual life.

The flight and fight response triggered by stress elevate adrenalin and cortisol levels in blood stream. So respiratory rate increases, blood supply to muscles and limbs increases, and the body can't process the glucose and result in hyperglycemia. Any physical or mental tension can be the cause of diabetes mellitus. Stress has been shown to have major effects on metabolic activity. Evidence characterising the effect of stress in Type I diabetes is contradictory Animal studies have shown that stressors of various kind can precipitate or

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prevent the various experimental models of the disease. Human studies have shown that stress can increase, decrease or have no effect at all on glycaemic status in Type I diabetes. This is attributable to the autonomic neuropathy which is common in Type I Diabetes mellitus. In contrast, the role of stress in Type II Diabetes is more evident. More animal studies are present than Human studies to establish the relation between stress and Diabetes.

How to overcome stress?

- One should accept stressful situation as challenges and not as threats.
- The root cause of stress must be tackled first (Anxiolytic and Anti-depressive medication without tackling the root cause will not do good)
- Practice better time management
- Improve organizational skill
- Resolve conflicts
- Regular exercise
- Practice of *Yoga*/meditation/*Pranayama*
- Relaxation techniques
- Eat moderately at proper times
- Proper sleep
- Seek support from professionals or from family

Ayurvedic interpretation of the relation between stress and Diabetes mellitus[6,7,8]

In Ayurveda, body is considered as a conjugation of *Panchamahabhuta*, soul and mind. Stress can be interpreted in different ways according to Ayurveda. Stressors (stress inducing factors) recognized in Ayurveda can be

(a) Physical stress - Excessive exercise, trauma, fasting etc.

(b) Psychological stress - Anger, fear, anxiety, grief etc.

(c) Environmental stress - Exposure to intense heat of sun, high altitude etc.

Stress can be correlated with the word '*Sahasa*' which can be defined as the excessive exertion compared to one's physical/mental strength. *Sahasa* is mentioned in *Charaka Samhita Nidanastana* in the context of *Sosha Nidana*. *Charaka* says clearly that *Sahasa* will affect the body adversely. *Sahasa* cause depletion of *Ojas* which is the essence of *Sapta Dhatus* and represent the strength of body. *Ojakshaya* leads to *Dhatu Kshaya* and the person becomes weak and emaciated which causes *Vata Kopa* causing *Vishamagni. Vishamagni* causes *Ama* formation leading to *Dhatu Dushti.*[14] If *Medo Dhatu* is affected, prodromal symptoms of *Prameha* can be seen. While explaining *Prameha Samprapti,* it is told that *Ojas,* more precisely *Apara Ojus* is expelled out from the body through sweat and urine since *Atipravarthi* of *Sweda* and *Mootra* is seen in *Prameha*. So, *Ojakshaya* can lead to *Prameha* and vice versa.[9]

Charakacharya mentioned '*Krodha*' in *Pittaprameha Nidana* and '*Udwega*' and '*Soka*' in *Vata Prameha Nidana.*[12,13] The terms *Krodha* (anger), *Udwega* (anxiety) and *Soka* (grief) can be included as Psychological stress factors. Ayurveda consider these as *Manodoshas. Manodoshas* inturn cause the vitiation of *Sareerika Doshas* which vitiate *Rasa Dhatu* leading to *Agnimandya* and subsequent formation of *Ama.*[10] According to *Susruthacarya*, in disturbed state of mind, a person is not able to digest the food even if taken in normal quantity which can lead to *Ama* formation. This *Ama* settles in *Vasti* leading to *Prameha*. Patients with stress often avoid their daily routine, get depressed and show a sedentary life style which is mentioned as a cause for *Kaphaja Prameha*. Thus, *Acharya Charaka* and *Susrutha* have highlighted that mind and body are the seat of diseases and they are interrelated.

Harita Samhita has mentioned that stress and wrong behavior can lead to diabetes Mellitus.[11]

Ayurvedic guidelines for stress induced *Prameha*

1) *Dinacharya* - Daily routine

2) Use of *Rasayana* drugs

Example:

a) *Aswagandha* which is anti-diabetic as well as useful in anxiety.

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b) *Guduchi* which is anti-diabetic and also lowers stress

c) *Amalaki* useful in Oxidative stress and in metabolic disorders like Diabetes mellitus and Dyslipidaemia

d) *Jatamansi - Medhya Rasayana* which is antidiabetic and lowers intellectual stress[15]

3) *Sirodhara*

This is a procedure in which medicated oil is poured over scalp for stipulated time. Stress causes imbalance of *Prana, Udana* and *Vyana Vayu, Sadhaka Pitta* and *Tarpaka Kapha. Sirodhara* re-establishes the functional integrity of these *Doshas* thereby reducing stress as well as sugar level.[16]

Conclusion

Thus, Diabetes mellitus can be considered as a disease that is initiated and provoked by physical as well as psychological factors and most of the signs and symptoms can be placed under the broad heading of stress. Stress especially Distress was proved to be a potential factor for Hyperglycemia. This can be attributed mainly to hormonal changes. In Ayurveda, depletion of *Ojus* takes place in stressed persons which can increase blood sugar. Stress can be correlated as *Sahasa* in *Ayurveda* and can be controlled by lifestyle modification especially adequate exercise, wholesome diet, regular sleep and proper use of *Rasayana* drugs which keep a person mentally and physically fit.

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