

Menstrual Cycle as Protective Factor and Increasing Risk Factor of Diabetes Mellitus in Male Persons Proved According to the Ancient Ayurvedic Literature

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Abstract

Introduction: The current demographic definitions for diabetes mellitus have not cited gender nor accounted for the possibility that healthy menstrual cycles may be a protective factor for the development of Type 2/noninsulin-dependent diabetes mellitus. The ancient physician Vallabhacharya posits that the monthly cycle of menstruation rids the blood of toxins that may build up and cause disease and presents this as a reason for less prevalence of *Prameha* (*Madhumeha*/diabetes) in women. **Aim:** The study conducted as a meta-analysis of five clinical studies to observe whether a significant difference in diabetes occurrence exists in menstruating females and similarly-aged males, as well as non-menstruating older females versus 50+ aged males. **Materials and Methods:** A meta-analysis was conducted with data from a series of clinical studies conducted at the Outpatient Department of SS Hospital, IMS, BHU. The studies were done in conjunction with MD (Ayurveda) and PhD (Ayurveda) studies in the Department of Rasa Shastra, Faculty of Ayurveda, at BHU, Varanasi. Using different Ayurvedic dosage forms, in five different clinical studies, collected data included gender and age group as well as blood sugar levels. **Results:** The results of each of five studies revealed that the numbers of male patients are more in number. The numbers of females in the study of menstrual age were less than those who had stopped menstruating. **Conclusion:** The results support the Ayurvedic logic that the menstrual period is an effective physiologic occurrence for regular cleaning of the blood and proposed the male gender as a possible risk factor for diabetes.

Key words: Ayurveda, diabetes, disease frequency, gender differences, menstruation

INTRODUCTION

Diabetes Mellitus is a whole-body disorder that affects hormonal balance and is marked by chronic high blood glucose that eventually poisons blood vessels and organs, especially the kidney, retina of the eye and nerves in the extremities.

According to the International Diabetes Federation (IDF), approximately 285 million people worldwide (6.6%) in the 20-79 years age group had diabetes in 2010; they predict that a prevalence of 7.8% of the adult population, or 438 million people, by 2030^[1] with the largest increases expected to occur in regions dominated by developing economies. The IDF estimated the 2010 prevalence of diabetes in India to be approximately 50.8 million in a total population of 1.4 billion (3.6%), with an

expected rise to 87.0 million by 2030, and a prevalence in urban areas.

Hu *et al.* reported^[2] that, in 2014, over 380 million people had diabetes globally, with a prevalence of 8.3% of the global adult population, and estimate an increase to 592 million by 2035. Further, diabetes is no longer a disease of the affluent: Lower socioeconomic groups are disproportionately more affected in high-income countries

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in addition to 77% of the world's diabetic population who live in low- and middle-income countries. Diabetes is also no longer predominantly a disease of older persons: Almost half of the people with diabetes are in the 40-59 years age range.

Studies in India indicate that more than 50% of people with diabetes have poor glycemic control ($HbA_{1c} > 8\%$), uncontrolled hypertension and dyslipidemia, and a large percentage have diabetic vascular complications.^[3-6]

The study of diabetes in our research group at Banaras Hindu University (BHU) is propelled by the urgency of diabetes as an endemic in India, combined with the great experiential evidence of botanical preparations used in Ayurveda for the last 5000 years that have relieved clinical symptoms consistent with diabetes. These preparations help to reduce blood sugar measured by both plasma glucose levels and HbA_{1c} , but they also appear to work on the whole body according to biochemical and physiological parameters in modern medicine such as cholesterol level, liver enzymes, creatinine level, and lipid profile values.

Background

Classic Ayurveda texts describe polyuria as one of eight serious conditions, which should be addressed at their earliest manifestation. Called *Prameha*, it is clinically seen as a syndrome of weakness and gradual loss of ojas, accompanied by muscle loss, loss of strength, polyuria, nocturia, polydipsia, and polyphagia. Distinguished into 20 types, the most severe stage of polyuria is known as *Madhumeha* and is consistent with diabetes mellitus.

Without using biochemical tests, keen observation allowed the Ayurvedic physician to notice that ants and insects were attracted to the body and to the urine of a patient with *Madhumeha*. Specific distinguishing characteristics for the occurrence of diabetes were described including the predisposing symptoms, called *hetu*, and the pathogenesis, called *samprapti*, as well as the origin according to *doshadhatu vikriti*, called *nidana*.

**रजः प्रवर्तते यस्मान्मासि मासि विशोधयेत् ||
सर्वान् शरीर दोषांश्च न प्रमेहोस्त्यतस्त्रियाः |**

Transliteration:

*Rajah pravartate yasmanmasi masi visodhayet || 30 ||
Sarvan sharir doshansha na pramehostyastriyah |*

Source^[7]: Vaidya Chintamani – volume 1, chapter 20, verse 30, p776

Section entitled Prameha in Ladies: Reason for less occurrence of Prameha

Interpretation:

Every month (*yasman masi masi*) the menstrual fluid (*rajah*) is produced and released (*pravartate*)/excreted from the body. The whole (*sarvan*) body (*sharir*) is thus purified (*visodhayat*) of imbalanced/toxic essences by facilitating excretion of doshas (*doshansha na*) from the body thus diabetes/polyuria (*prameha*) is not (*na*) prevalent in (*asti ataha*) females (*striyah*).

Since earliest times, Ayurvedic physicians used keen observation powers to diagnose and prognosticate diseases, capturing their knowledge in the ancient classic texts of Ayurveda. During the 15th century CE, Indrakantha Vallabhacharya, a famous physician in the southern part of India, wrote an important treatise of Ayurveda commonly known as Vaidya Chintamani. He compiled the work in Telugu script but it is originally in the language of Sanskrit. It details Ayurveda as it was practiced in Andhra Pradesh and widely throughout South India. As a scholar with special expertise in Bhaishajya Sastra, Vallabhacharya detailed a large number of formulations for curing various diseases. The treatise of Vaidya Chintamani is considered a bilingual work as the contents show cultural knowledge conveyed both in Samskritam and Telugu culture. The most current translation of this book is now published and available^[7] in both English and Sanskrit.

Of the 25 vilasas (sections) captured in Vaidya Chintamani, chapter 20 details *Prameha prakarana* (the manifestation of urinary disorders and polyuria syndromes), in which *Vataja Pramehas* detail the most severe stage of polyuria as *Madhumeha*, consistent with diabetes mellitus. Vallabhacharya posits that the monthly cycle of menstruation rids the blood of toxins that may build up and cause disease, and presents this as a reason for less prevalence of *Madhumeha*/diabetes in women.

MATERIALS AND METHODS

Demographic studies on diabetes have not distinguished any gender difference in diabetes.^[1-4,8] Clinically, however, in our diabetes research group at BHU which develops Ayurvedic herbal and mineral formulations for diabetes patients, we noticed a preponderance of male patients coming for natural and Ayurvedic treatment of diabetes mellitus. On studying the prevalence of diabetes in an individual study, we investigated other clinical studies in which patients voluntarily enrolled for the treatment through Ayurvedic formulations. A meta-analysis of patients from five studies was performed. Concurrently, the group was searching for formulations used in ancient times for diabetes. On searching through the slokas, we noticed the sloka on gender prevalence and hunted for ancient Ayurvedic scriptures that prognosticate risk factors for diabetes.

Based on the sloka, we sought to validate the reasoning by searching for gender data in larger studies. As they are not available, this demographic study was conducted to observe whether a significant difference in diabetes occurrence exists between menstruating females and similarly-aged males, as well as non-menstruating females versus 50+ aged males. A meta-analysis was conducted with data from a series of clinical studies conducted at the Outpatient Department of SS Hospital, IMS, BHU.

The studies were done in conjunction with MD (Ayurveda) and PhD (Ayurveda) studies in the Institute of Medical Sciences, Department of Rasa Shastra, Faculty of Ayurveda, at BHU, Varanasi, Uttar Pradesh. Each of the students' studies a different ayurvedic polyherbal formulation, either detailed in the classical literature as useful for diabetic symptoms or for *Prameha*, which is similar to polyuria.

Using different Ayurvedic dosage forms, in five different clinical studies, collected data included gender and age group as well as blood sugar levels. Menstruation was taken as age 50, as worldwide data indicate that most women enter menopause at this age.^[9]

RESULTS

A compilation of the results of each of five studies revealed that the number of male patients is more in number, as mentioned in the classical text. Furthermore, the number of females in the study of menstrual age was less than those who had stopped menstruating [Table 1 and Figures 1-4].

DISCUSSION

Based on data collected from five studies, a simple meta-analysis shows great support for the ancient slokas seen in Vaidya Chintamani and Bhaisajya Ratnavali. The results were analyzed according to gender of patients coming for the

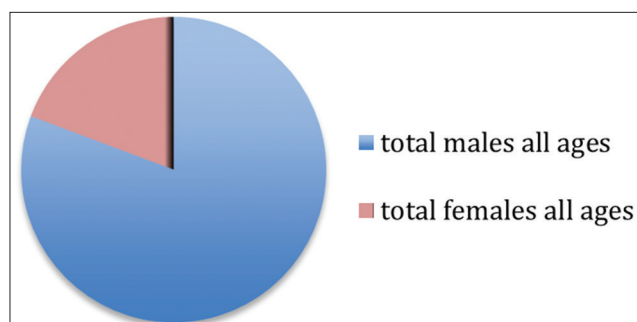


Figure 1: Relative ratio of male:female patients enrolling for diabetes treatment

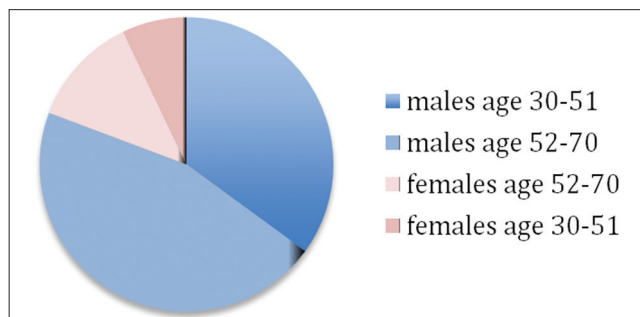


Figure 2: Relative ratio of male:female patients below and above 51, enrolling for diabetes treatment

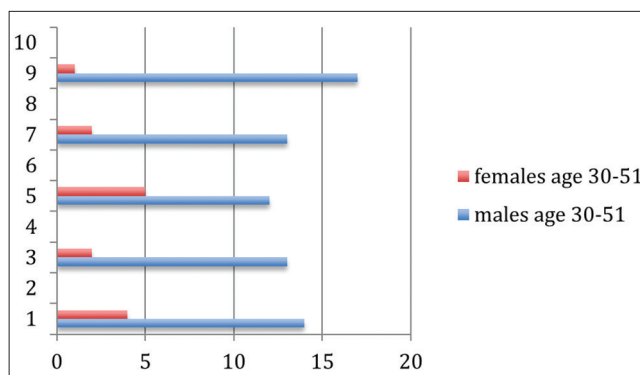


Figure 3: Comparison of age data from individual studies of enrolled diabetes patients under age 51

Table 1: Comparison of patients from five individual clinical studies on diabetes formulations

Study	Total number of patients	Males age 30-50	Females age 30-50	Males age 50-70	Females age 50-70
Bramhankar <i>et al.</i> ^[10] Lodhradi kashaya Ghanavati	45	14	4	18	9
Nille <i>et al.</i> ^[11] Talapotak Churna	36	13	2	16	5
Singh <i>et al.</i> ^[12] Chanak Yoga	40	12	5	16	7
Singh and Reddy ^[13] Lodhradi Kashaya	34	13	2	19	0
Bhattacharya <i>et al.</i> ^[14] Madhumehantak Churna	46	17	1	25	3
Total	201	69	14	90	24

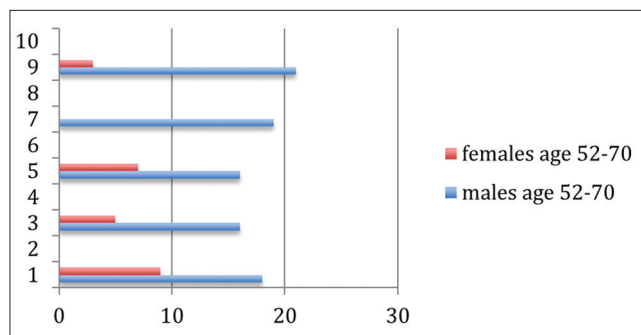


Figure 4: Comparison of age data from individual studies of enrolled diabetes patients above age 51

treatment of diabetes and clearly show a significantly greater number of male versus female patients. Further, diabetes occurs in lower frequency in women of menstrual age than of postmenstrual age.

The logic given by the ancient physicians^[7,14] is that diabetes is less prevalent in females because they have the advantage of regularly ridding their body of toxins (*ama*) during their monthly menstrual period (*rajah*). Based on these slokas, we can validate the reasoning in Ayurvedic dosha theory as buildup of *ama* (toxins) in the blood (*rakta*) tissue will predispose patients to imbalances and disease. Blood builds up toxins in male patients faster than in female patients because females of menstrual age (approximately 14-51) have monthly cleansing cycles during which blood toxins are released out of the body. Therefore, less diabetes should develop in women of menstrual age.

Toxins floating in the blood, such as high sugar, when excreted regularly, prevent the pathologies that occur with chronic exposure of tissues to high sugar, such as the pathogenesis of inflammation, nonalcoholic fatty liver disease and atherosclerosis, plaque formation and microvessel disturbances that affect the kidney, the retina, and the distal extremities.

In a recent study,^[15] markers of oxidative stress, systemic inflammation, and endothelial dysfunction were analyzed in men younger and older than 45 years and in pre- and post-menopausal women. Men and postmenopausal women indeed had increased vascular vulnerability^[16] based on biochemical markers, and the researchers pointed toward the need for the early cardiovascular prevention, rather than proposing the natural cleansing process of menstruation as a protective factor. After menopause, toxin buildup occurs producing an increase in the parameters they measure.

CONCLUSION

When we observe the data of enrollment of diabetes patients, the logic still holds today that was proposed by ancient Ayurvedic scholars stating that women get diabetes less often

than men. The results support the Ayurvedic logic that the menstrual period is an effective physiologic occurrence for regular cleaning of the blood and proposed the male gender as a possible risk factor for diabetes.

The data in this study also suggest that males should take greater care to clean their blood through periodic cleansing rituals such as exercise that releases sweat, *panchakarma* (five classic cleansing procedures), *snehana* (oil massage), and herbs that clean the blood. This proactive attitude of blood purification and avoidance of sedentary lifestyle may help to prevent diabetes in men prone to the disease and provide a key protective factor in the development and incidence of diabetes.

Females not having regular menstrual cycles should reconsider the value of a wholesome cleansing period. Recent developments in contraception that curb menstruation to annual, biannual, or quarterly periods or choices in surgery that lead to early menopause may lead to long-term body toxins that predispose the body to inflammation and diabetes.

From these classical references and the current data, there is a need to further observe gender demographics in larger studies and correlate them specifically with menstrual cycles.

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