

Management Of Type II Diabetes Mellitus (T2DM) Through Herbal Medicinal-Smoke (Dhoom-Nasya) - A Case Study

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Abstract

Type II Diabetes Mellitus (T2DM) is one of the most severe metabolic pandemic of the 21st century. T2DM is often initially managed by increasing exercise and dietary modifications; medications are typically needed as the disease progresses. However, complete management of T2DM is still a challenge for any system of medicine.

Various ayurvedic herbs have shown encouraging results in the management of T2DM. Furthermore, pulmonary administration of medicinal plants in the form of medicinal-smoke (Dhoom-Nasya) has been suggested as a form of drug delivery, which is therapeutically efficient as well as cost-effective. Thus, in the present study, a herbal preparation, comprising of 24 herbal ingredients, such as Vijaysar, Gudmar, Karela, Jamun, Daruhaldi, etc. was made in the form of incense sticks; the smoke from these incense sticks was recommended to a subject suffering from T2DM. The subject was told to burn 4 incense sticks each in morning and evening, in a confined space, and inhale the vapors for about 45 min through deep breathing. The subject was supposed to continue this process for a minimum of 10 weeks.

The results were encouraging. The subject had been suffering from T2DM since last 6 years, and had been taking modern medicine ever since. Subject's HbA1C had earlier reached up to 10, which after taking medicine and weight reduction, had later been between 7 to 8. However, after 13 weeks of the current treatment (continued along with the modern medicine), the HbA1C came below 7. The subject also experienced relief in associated symptoms like polyphagia, irritation, etc.

Thus, pulmonary administration of medicinal-smoke (Dhoom-Nasya) through incense sticks can be an effective supportive therapy for the management of T2DM.

Introduction

Type II Diabetes Mellitus (T2DM) is one of the most severe metabolic pandemic of 21st century, affecting millions of people in India alone. As a lifelong disease, it increases morbidity and mortality. Although several therapeutic techniques are available for its management, long term cure of T2DM is still a challenge (Kahn, Cooper, and Del Prato 2014)• (Israili 2011)•

Various ayurvedic herbs have shown encouraging results in the management of T2DM. Traditionally these herbs are used as homemade remedies and in ayurvedic practices (Modak et al. 2007)• (Wang, Wang, and Chan 2013)•.

Administration of herbal drugs through burning them and generating medicinal smoke has been used in different cultures around the globe for wide range of diseases (Mohagheghzadeh et al. 2006)•. Especially in India, in Ayurvedic system, administration of pulmonary inhalation is termed as Dhoom-Nasya or Dhoomapana, and is being used as ayurvedic prescription (Radhika, Kumar, and Mihirjan 2012)• (Amruthesh 2008)•. Furthermore, pulmonary administration of medicinal plants in the form of medicinal-smoke has been suggested as a form of drug delivery, which is therapeutically efficient as well as cost-effective. Pulmonary administration of medicinal-fumes of specific

herbal preparations generated in yagya have been shown to be an effective approach in the management of various diseases (Joshi, Raghuvanshi, and Pandya 2006)• (Raghuvanshi, Pandya, and Joshi 2004).•

In the present study, a herbal incense stick comprising of 24 herbal ingredients, such as Vijaysar, Gudmar, Karela, Jamun, Daruhaldi, etc. was made at Centre for Ayurveda Studies, Department of Yoga & Health, Dev Sanskriti Vishwavidyalaya, Haridwar. A subject suffering from T2DM was advised to inhale medicated smoke along with regular intake of conventional medicine. Thus, present case study examined and showed the efficacy of pulmonary inhalation of medicinal smoke (Dhoom Nasya) of herbs in the management of T2DM.

Materials & Methods

In the present study, a herbal preparation, comprising of 24 herbal ingredients, such as Vijaysar, Gudmar, Karela, Jamun, Daruhaldi, etc. were used to make incense sticks. The smoke from these incense sticks was recommended to a subject suffering from T2DM. The subject was told to burn 4 incense sticks each in morning and evening, in a confined space (4.5 feet X 6.5 feet X 8 feet room with closed door and 1 feet X 1.5 feet outlet window), and inhale the vapors for about 45 min minimum through deep breathing. The subject was supposed to continue this process for at least 10 weeks.

Measurement of Glycosylated Hemoglobin test (HbA1C), which identifies average plasma glucose concentration, was carried out at Janmashatabdi Chikitsalay, Shantikunj, Haridwar before and after the therapy. The HbA1C value ranges used in the study were as following: 4.1 to 6.1: Non diabetic; 5.5 to 6.8: Good diabetic control; 6.8 to 8.2: Fair control; > 8.2: Poor control. These were chosen based on the recommended guidelines of three common standards, i.e. World Health Organization (2006), International Diabetes Federation (2013) and American Diabetes Association (2015).

Primary herbs used in the incense sticks preparation (Misra and Vaisya 2013): Haldi (*Curcuma domestica*-Vahl.), Kalmegh (*Andrographis paniculata*-wall.), Giloy (*Tinospora cordifolia*-Miers.), Punarnava (*Boerhaavia diffusa*-Linn.), Bilva (*Aegle marmelos*-Corr.), Kooth- bitter (*Saussurea lappa*-C.B.C.), Methi (*Trigonella foenum-graecum*-Linn.), Aam (*Mangifera indica*-Linn.), Daruhaldi (*Berberis aristata*-D.C.), Harad (*Terminalia chebula*-Retz.), Kutakee (*Picrorhiza kurroa*-R.ex.Ben.), Vijaya (*Canabis Sativa*-Linn.), Khurasani ajvaayan (*Hyoscyamus niger*-Linn.), Jamun (*Syzygium cumini*-Skeels.), Vijayasaar (*Pterocarpus marsupium*-Roxb.), Khas (*Andropogon muricatus*-Retz.), Gudmaar, (*Gymnema sylvestre*-R.Br.), Gular (*Ficus glomerata* - Roxb.), Kaith (*Feronia elephantum*-Corr.), Tulasi (*Ocimum sanctum*-Linn.)

Result

The results were encouraging. The subject had been suffering from T2DM since last 6 years, and had been taking modern medicine ever since. Subject's HbA1C value had earlier reached up to 10% around 6 years ago which is considered as very poor control of T2DM (See Figure 1). After 3 years of intake of medicine and weight reduction precautions, subject's HbA1C value reduced, but always remained between 7% to 8% (Figure 1), while fasting blood sugar (FBS) became normal. With continuation of the same treatment, and same dietary and life-style precautions ever since, the value of HbA1C could be maintained between 7% to 8%, which lies in the fair control category of HbA1C (range 6.8% – 8.2%). However, after 13 weeks of the supportive therapy prescribed in the present study, i.e. pulmonary inhalation of medicated-smoke (generated using incense sticks made of herbs with anti-diabetic properties) along with the conventional treatment, the HbA1C value came below 7, i.e. 6.7% (Figure 1). The FBS and post prandial blood sugar (PPBS) also remained in the normal range. Also, during this process, the subject could meditate much better and

experienced relief in associated symptoms like polyphagia, irritation, etc. Thus, the pulmonary inhalation of medicated smoke

showed promising outcome in the management of T2DM and the associated symptoms.

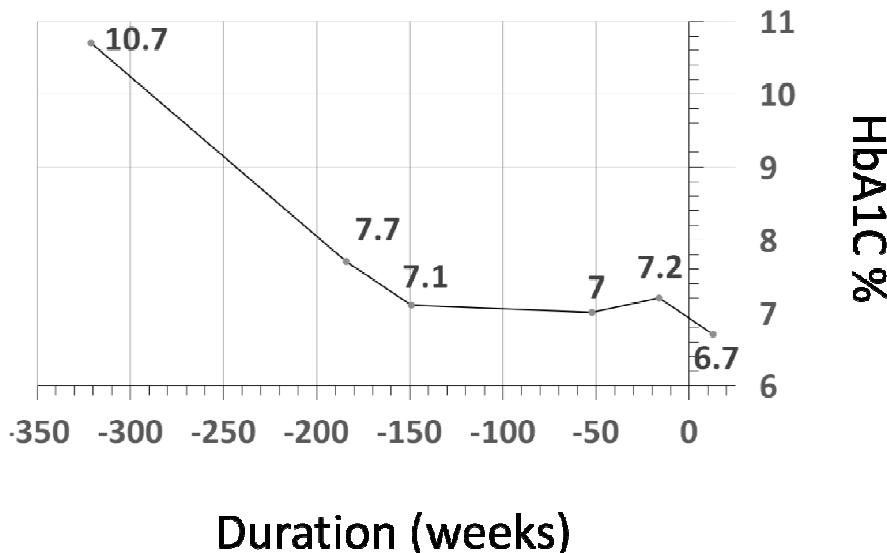


Figure 1: %HbA1C measurement in male subject suffering from T2DM since 2010. Earlier the subject took conventional allopathic treatment, along with dietary restrictions and exercise. X axis indicates duration in weeks of treatment since 2010. Point '0' on X axis indicates the time when the subject started taking pulmonary inhalation of medicinal smoke from incense sticks made of herbs with anti-diabetic properties, as a supportive therapy along with conventional allopathic treatment.

Discussion and Conclusion

Use of pulmonary administration of medicinal smoke exists in various traditional therapies in the world including Ayurvedic medicinal system (Mohagheghzadeh et al. 2006). In Ayurveda, pulmonary administration is used in various forms such as in Dhooma Nasya in *Panchkarma* (Amruthesh 2008) and also in *Yagya* therapy (Joshi, Raghuvanshi, and Pandya 2006). The present study attempts to use the medicinal smoke inhalation as a herbal drug delivery in T2DM diseased patients. The results were encouraging. Use of medicinal smoke as a supportive therapy, along with the regular

intake of modern medicine, helped in bringing down subject's %HbA1C from fair control (7.2) to good control (6.7) within 13 weeks.

Many of the herbs used in the study are traditionally being used, and scientifically shown to have anti-diabetic potential (Modak et al. 2007). For example Punarnava (*Boerhaavia diffusa*-Linn.) (Pari and Satheesh 2004) (Pari and Amarnath Satheesh 2004), Harad (*Terminalia chebula*-Retz.) (Sabu and Kuttan 2002), Giloy (*Tinospora cordifolia*-Miers.) (Stanely Mainzen Prince and Menon 2003) (Stanely Mainzen Prince and Menon 2001), Methi (*Trigonella foenumgraecum*-Linn.) (Gupta, Raju, and Baquer 1999), etc.

In the present study, the subject had a routine to sit in meditation in confined room for at least 45 minutes both in morning and evening, and was taking medicinal smoke of incense sticks as described in the materials and methods section. Since the past six years, subject had been taking conventional allopathic medicine, along with various fasting and other spiritual practices, yet during past 3 years the level of % Hb1AC was stable between 7% to 8%. The subject continued the same fasting and other spiritual

practices, along with conventional allopathic treatment, during the 13 weeks of the present supportive therapy of medicinal smoke inhalation. Thus, it can be concluded that the supportive therapy prescribed in the present study definitely played a role in reducing the HbA1C value, as well as other symptomatic relief.

Use of herbs having anti-diabetic potential for making incense sticks and generating medicated smoke is a novel approach. The present study demonstrated a case study and suggests that pulmonary administration of medicinal-smoke (Dhoom-Nasya) through incense sticks can be an effective supportive therapy for the management of T2DM.

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