

Review of Diabetes Management through Naturopathy

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Abstract

Diabetes is growing more common in the Indian population as a result of lifestyle changes. This study looks at the impact of naturopathy, salt-restricted low-calorie diets, and yoga on long-term glycemic control in people with type 2 diabetes. Diabetes type 2 is a huge worldwide health concern. According to the World Health Organization, diabetes, predominantly type 2, affects 5.2 percent of the world's adult population. India now boasts the world's greatest number of persons with type 2 diabetes, with a prevalence of 10.4 percent and a population of about 19 million people. India is expected to experience the greatest increase in incidence worldwide by 2045. (84 percent increase). This increase is related to an increase in life expectancy as well as lifestyle changes such as eating less healthy foods and being inactive. To minimise an increase in the prevalence of type 2 diabetes, countries must enhance prevention. The current review focuses on diabetes care using naturopathy.

Keywords: Management, Diabetes, Naturopathy

INTRODUCTION

Naturopathy is a drug-free, noninvasive, logical, and evidence-based medical system that provides natural remedies based on the philosophy of vitality, toxemia, the human body's self-healing potential, and the principles of healthy

living. This approach to health care stresses education, self-responsibility, and treatments to support and promote a person's ability to cure themselves. The Hippocratic School of Medicine adopted naturopathic ideas for the first time about 400 BC. Hippocrates, the Greek

philosopher, believed in treating the complete person when determining the origin of an illness and in employing natural laws to promote a cure[1].

Public health and naturopathy-intersecting paradigms:

The science and art of preventing disease, extending life, and promoting health via the coordinated efforts and informed decisions of society, organisations, public and private, communities, and people is characterised as public health (PH). [2] Naturopathy's philosophical methods include illness prevention, encouraging the body's innate healing capacities, natural remedies, taking responsibility for one's health, and educating patients about healthy lifestyles. [1] Thus, there is significant overlap between naturopathy and physical therapy, such as a focus on health rather than sickness, a preventative strategy, and an emphasis on health promotion, health education, and patient empowerment.

Naturopathy and chronic diseases:

Chronic lifestyle illnesses, which are caused by modifiable health behaviours such as cigarette use, poor food, and physical inactivity, are currently the largest source of disease burden and morbidity worldwide. [3- 4] Through

various natural treatments, many of which can play a part in the primordial and primary prevention of certain illnesses, public health might look to naturopathy for answers to some of these difficulties. PH, on the other hand, can identify mechanisms to effectively deliver naturopathic principles, such as increased public access to naturopathic physicians in community clinics, increased formal collaboration between naturopathic and other health professionals, or increased the number of trained integrative medicine providers.

Some selected naturopathic therapies:

Nutrition:

Naturopathy regards food as medicine. Good nutrition is the foundation of naturopathic practice for health promotion and disease prevention. Food is thought to be best in its natural state, sourced locally, and consumed seasonally.

Hydrotherapy:

The external or internal application of water in any of its forms, such as ice, water, or steam, is known as hydrotherapy. Hot and cold baths, steam baths, compresses and fomentation, saunas, wraps, and immersion baths are all examples of hydrotherapy. Spinal bath, sponge bath, hip bath, sitz bath, enema,

and colon hydrotherapy are some of the additional methods.

Fasting therapy:

Fasting is primarily the act of willingly abstaining from some or all food, drink, or both, for a period of time during which the body excretes huge amounts of accumulated wastes. Methods of fasting include water, fruit juices, lime juice, or raw vegetable juices.

Yoga:

Yoga is a Hindu spiritual and ascetic discipline which includes breath control (pranayama), simple meditation, and the adoption of specific bodily postures (asanas). The aim of practicing pranayama is to stimulate, regulate, and harmonize vital energy of the body. Asana means holding the body in a particular posture to bring stability to the body and mind.

Behavioral therapy:

Naturopathy focuses on assisting clients in identifying and modifying unwanted behaviors through basic counseling, lifestyle modification, hypnotherapy, meditation, and stress management. To achieve this, it is essential to spend quality time listening to the patient so as to understand the way they live and to strengthen the physician-patient

relationship. It has important implications in behavioral modifications, which is the mainstay of treatment of chronic diseases.

Health promotion:

Health promotion is deep-seated in the practice of naturopathy, both philosophically and in the delivery of health care. Studies of naturopathic practice have shown that health promotion counseling on diet, physical activity, and stress management is incorporated into almost every clinical encounter (80-100%) and is reinforced in subsequent patient visits. [5-6] However, conventional care has low rates of health promotion practice (<35-40%). [7] Thus, at the individual and community levels, health promotion could benefit from closer collaboration with naturopathy.

Trends in the use of naturopathy worldwide:

Patients are increasingly choosing naturopathic therapy for a variety of reasons, the most prevalent of which is a desire to employ all available treatment techniques. Other key factors include a holistic approach that tackles the basis of the problem, more time and attention from the doctor, worry about drug side effects, greater control over the therapy, and not being helped by conventional care [8]. Nearly 80% of the population in poor

nations relies on traditional medical systems for primary care [9].

Policy environment for naturopathy in India:

The Alma-Ata Declaration acknowledged the importance of traditional medical systems and urged for the incorporation of safe and effective traditional medicine practises into primary health care[10]. The World Health Organization (WHO) has urged its member countries to include complementary and alternative medicine (CAM) into their national health-care systems. The National Policy on Indian Systems of Medicine and Homoeopathy, published in 2002, underlined the importance of a meaningful gradual integration of Indian Systems of Medicine with contemporary medicine.

The Indian government has also said that the Indian Systems of Medicine provide a wide range of cost-effective and efficacious preventative, promotive, and curative treatments[11]. There is an urgent need to remedy the long-standing neglect of these systems in our health-care delivery system.

Introduction to Diabetes:

Type 2 diabetes mellitus is a chronic metabolic lifestyle illness characterised by

excessively increased blood sugar levels and urine output of excess glucose. Its incidence is quickly increasing around the world, affecting roughly 285 million people now and expected to climb to 439 million by 2030 [12-13].

Insulin is quantitatively diminished in type 2 diabetes mellitus.

The target cells are insulin resistant, resulting in hyperglycemia and glycosuria, and if unchecked, can lead to a variety of problems such as ischemic heart disease, stroke, blindness, limb amputations, and nerve and kidney dysfunction [14].

The human and economic costs of type 2 diabetes mellitus are expected to rise in the near future due to rising rates of urbanisation, rural-urban migration, physical inactivity, sedentary lifestyles, and bad dietary habits [15-16].

Nature cure believes that all ailments are caused by morbid stuff accumulating in the body, and that removing it brings cure or alleviation. Naturopathy is viable, safe, and compatible with other therapy methods for compensating for chronic diabetic problems such as hyperglycemia, hyperinsulinemia, and insulin resistance with a lower diabetes population burden. It

may first underline the need to treat all of the causes involved, such as glucose intolerance, insulin insensitivity, obesity, dyslipidemia, hypertension, and stress, before allowing the body to recover [17].

Naturopathy intervention:

The Naturopathy intervention was provided as a residential treatment for a period of four months at Bapu Nature Cure Hospital & Yogashram. The sessions were conducted five times in a week for first month, thrice in a week for second month, twice in a week for third month and once in a week for fourth month. Naturopathy session included Mud pack (20 minutes), Massage (20 minutes), and Hip bath (20 minutes).

Mud Therapy:

Mud pack was applied to the patients of interventional group for 20 minutes over the abdominal region on empty stomach by the use of clay pack which is free from contamination. It helps to correct the imbalance of the digestive and endocrinal organs, which remain under active in diabetic patients resulting in accumulation of toxins. Mud pack on abdomen absorbs heat and produces soothing and cooling effect. It also improves blood circulation, removes congestion and tones up the tissues and organs [18-20].

Massage Therapy:

Sesame oil was smeared on the belly and spine of the interventional group patients for 20 minutes, which improved not only blood circulation but also muscle tone while increasing structural and functional status, and therefore insulin sensitivity. Massage also creates heat by increasing blood circulation, which brings all pollutants to the channel and expels them through perspiration or urine. As a result, it is extremely effective in the treatment of diabetes [21].

Parameters of Yoga and Naturopathy

Treatments Height: Height is measured using a stadiometer in centimeter round of to the nearest whole digit.

Weight: Weight will be quantified using a digital weighing machine to the nearest 0.5kg.

Body mass index: From the height and weight BMI will be calculated with the formula weight in kilogram divided by the square of height in meters [22].

Waist-hip ratio: A non-stretchable tape is used in measuring the circumferences. Hip circumference will be measured at the level of greater trochanter and parallel to ground. Waist circumference will be

measured at the level of lower margin of last palpable rib in mid axillary line and parallel to floor. Measurement will be made to the nearest centimeter. Waist to hip ratio will be calculated by dividing the waist by the hip circumference.

Skin fold thickness: Slim guide calliper will be used to assess skin fold thickness. Skinfold thickness is measured in millimetres, with a contact surface pressure of 10 g/mm². Male skin fold thickness is tested on the triceps, subscapular skinfold thickness (SBS), and chest. Female skin fold thickness is tested on the triceps, suprailiac skinfold (SPS), and belly. At each site, two measurements will be obtained at least 15 seconds apart, and the mean of the two values will be recorded[23].

Body fat analyzer: Body composition will be measured by using Body stat 1500. The electrodes are placed on the foot and hand for recording. Electrodes are placed sideways so that the non-stick electrode connector point is facing the researcher.

- **Foot electrodes:** One electrode is placed centrally, directly where the second and third toes meet the foot. The second electrode is placed at the crease of the ankle (midline to the 'bony' landmarks). Two alligator clips

are attached to the electrodes (red nearest the toes, black nearest the ankle).

- **Hand electrodes:** One electrode is placed centrally, directly below the third knuckle of the middle finger. The second electrode is placed on the crease of the wrist (midline to the 'bony' landmarks). Two alligator clips are attached to the electrodes (red nearest the fingers, black nearest the wrist) and reading is taken.

Blood pressure measurement: Blood pressure will be measured in a quiet and calm environment using digital sphygmomanometer (Schiller) and values such as systolic blood pressure (SBP), diastolic blood pressure (DBP), mean arterial blood pressure (MAP) and pulse rate (PR) are noted.

Heart rate variability (HRV): The HRV will be measured for 5 minutes before and after the intervention (total 5 recordings during the study period). AD instruments' 8 channel polygraph will be used to capture the electrocardiogram (ECG). HRV waveforms will be examined.

Biochemical parameters:

Under aseptic settings, 4 mL of patient blood will be obtained by venipuncture 8 hours after the previous meal in an asterile vacutainer. After centrifugation at 3000 rpm for 5 minutes, serum is collected and kept at -40oC for further analysis.

HbA1c (Hexokinase technique), fasting blood glucose (Hexokinase method), expanded lipid profile (total lipid profile) (total cholesterol, High density lipoprotein cholesterol, triglycerides – byenzymatic methods, low density lipoprotein cholesterol – by direct method) Immunoturbidimetry was used to measure ApoA1, ApoB, and lipoprotein (a). Fasting insulin determination using an enzyme linked immunosorbent assay (ELISA - DRG- INS kit)

Post prandial blood glucose level: The patient will be made to take 75gm of oral anhydrous in wateror food with equal glucose load. The blood samples will be collected after 2hrs of consumption forserum glucose estimation.

Insulin resistance: Insulin resistance is calculated by using Homoeostasis model assessment Inflammatory marker:hs-CRP – ELISA technique Pro-oxidant and Antioxidant Markers: myeloperoxidase,

advanced oxidative protein products, protein carbonyls, superoxide dismutase – ELISA technique

Quality of life: The quality of life (QOL) of the participants will be assessed at the baseline and at the end of 9th month by using a standard questionnaire specifically designed for diabetes individuals Diabetes quality of life (DQOL) – short version based on Classical Test Theory (CTT).

Cardiovascular risk assessment: The risk of developing cardiovascular disease will be quantified by using Ten-year Framingham coronary risk score.

YOGA AND NATUROPATHY INTERVENTION PROTOCOL:

With past clinical experiences, a set protocol for 10 days is created; modest day-to-day alterations will be made by N&Y physician on a daily basis. If an unfavourable event occurs during the intense phase, the subject's data will be removed from the final analysis. In the common treatment portion, certified therapists will provide therapy, and the duration of each session will be separately tracked using wall clocks in each treatment room. The treatment procedure and a food schedule for ten days are provided. Yoga intervention will be provided in a general

yoga session, and personalised attention will be provided to particular issues. N&Y physician will oversee the daily 60-minute Yoga session. Yogic Kriya will be taught to the subjects on the third and seventh days under the supervision of N&Y Physician. Following the post-data analysis, the individuals will be coached on the significance of maintaining a comparable diet and yoga practise at home for better outcomes. They will be given a notebook in which to record their adherence to the newly created lifestyle and food pattern. The journal has separate sections for recording daily activities. The data collector will evaluate the diary following the research period.

Clinical Risk Factor Changes during Naturopathic Care for Type 2 Diabetes:

Data extracted from medical charts between December 2006 and June 2007 were used in a retrospective, observational analysis. The Bastyr University Institutional Review Board authorised the project. Medical charts were located using clinic scheduling software that was searchable by International Classification of Diseases, Ninth Revision (ICD-9) codes. This study included individuals who met three inclusion criteria: (1) an ICD-9 diagnosis of T2DM, (2) proof of at least 6 months of naturopathic therapy

between 2001 and 2006, and (3) N.D. care particularly for diabetes (versus accompanying symptoms). Using a time period that is either too short or too lengthy as an inclusion criterion leads in inherent bias. Including only those patients who have been in care for a long time leads to selection bias (e.g., oversampling of the uniquely motivated); allowing for a short time period leads to underestimation of the effects of a care process, recognising that lifestyle elements of care, in particular, may take some time for patients to adopt. In order to balance bias between the two extremes, a 6-month length of treatment was specified.

Patient demographics, dates and duration of care, frequency of clinical visits, clinical service utilisation, characteristics of care including treatment recommendations, physical examination findings such as blood pressure, and clinical laboratory risk factors such as HbA1c, LDL=HDL cholesterol, and triglycerides were all collected.

Two-tailed, paired t tests for homogeneity were used to compare laboratory values and blood pressure from the patient's initial visit to the most recently available value at the time of chart abstraction to describe any changes in the distribution of

clinical risk variables in the sample. Acceptable baseline results were laboratory values obtained within three months of the baseline visit.

In addition to calculating average changes in risk variables, the data was subjected to three pre-specified criteria to further define the degree of clinical change. The percentages of patients who achieved (1) "new ADA control," (2) "clinically substantial improvement," and (3) "any improvement" were determined. If the patient was "uncontrolled" before the start of therapy, "new ADA control" equals to control of risk factors according the American Diabetes Association criteria during the term of N.D. clinical care.

The ADA definitions for risk factor control are: <7% for hemoglobin A1c, <130 mm Hg for systolic blood pressure, <80 mm Hg for diastolic blood pressure, <100 mg=dL for LDL cholesterol, >40 mg=dL for HDL cholesterol, and <150 mg=dL for triglycerides.⁸ "Clinically significant improvement" was defined for each risk factor based on the minimum change deemed clinically important; for our purposes, "clinically significant improvement" equates to the following: a minimum 0.5% reduction in HbA1c, a minimum 10% decrease in LDL

cholesterol, a minimum 10% increase in HDL cholesterol, a least 30% decrease in triglycerides, or a 5 mm Hg decrease in SBP or diastolic DBP blood pressure from the start of therapy to the most recent measurement. "Any improvement" was the loosest definition, referring to any improvement in the measured risk factor between the start of care and the most recent measure available.

Clinical Risk Factor Changes Observed During Naturopathic Care for Type 2 Diabetes: Between 2001 and 2006, 123 potential patients were evaluated with T2DM during their naturopathic therapy; 37 of 123 (30%) satisfied inclusion criteria for comprehensive abstraction in this analysis. The most prevalent reason for chart exclusion was that the length of care did not match the 6-month requirement; this explanation was given to 76 of 123 (62%) charts. Data from 418 total visits was abstracted and included in analyses for these 37 patients; individuals attended 11 naturopathic appointments on average throughout a 27-month period of care. The patients who met the inclusion criteria had an average age of 62 years. Female gender was more prevalent (58% female), and there was significant racial homogeneity (80% white) in the patient group getting N.D. treatment for T2DM at the research

clinic. During our observation period, T2DM care was mostly provided by adjunctive care (80%) rather than primary care (20%).

During N.D. clinical practise, there was a high frequency of health-promotion counselling. 100% of patients received health-promotion guidance (diet), 92% received exercise instruction, and 47% received stress-reduction advice. In following clinical encounters, health-promotion suggestions were repeated or changed; 63%, 35%, and 16% of total visits contained advice on food, exercise, and stress management, respectively.

Recommendations for using accessible integrated services (nutrition, psychological counselling, and other CAM services) were widespread: 32% (nutritionist), 11% (Ph.D. psychologist or N.D. counsellor), 26% (acupuncturist), 18% (homoeopath), and 18% (other CAM services) (N.D. manual therapy provider).

Repeat clinical laboratory or physical examination data were available for HbA1c, LDL=HDL=triglycerides, and blood pressure in 31=37 (84%), 29=37 (78%), and 37=37 (100%) of patients, respectively. Significant improvements in risk factor distributions were achieved for

HbA1c, SBP, and DBP on average. The average changes in LDL and HDL cholesterol across the observation period were not statistically significant. The average baseline values of selected clinical risk variables are reported, together with the average changes.

The frequency with which patients improved clinically during the observation period. Over the course of N.D. therapy for diabetes, patients appear to achieve graded improvements in all evaluated risk variables. As demonstrated, the majority of patients improve over their course of N.D. therapy, with significant proportions of patients obtaining clinically significant risk factor changes.

Notably, "new control" for HbA1c, SBP, and DBP (under definition 1) was obtained in an additional 26%, 16%, and 27% of patients, respectively, despite a significant proportion of patients being "under control" for these parameters at baseline (HbA1c: 55%, SBP: 30%, and DBP: 30%). Baseline control for HDL was rather high (93%), which may explain why few extra patients obtained "new control" for HDL; baseline control for LDL cholesterol was less frequent (41%). Regardless of baseline control, around 25% achieved a

clinically meaningful improvement in cholesterol risk variables.

This study demonstrates that clinically significant risk factor reductions occur with N.D. management for T2DM. Health promotion counselling, such as dietary changes, exercise, and stress reduction, appear to be essential components of N.D. practise.

These high rates of health-promotion counselling contrast with traditional, allopathic primary care estimates[24]. Although this self-selecting patient group may be more responsive to individual health-promotion counselling, it is also probable that the N.D. standard is to advocate lifestyle adjustment in practise in order to influence the patient's readiness to change. Because lifestyle changes have a significant impact on mortality in patients with cardiovascular disease (CVD), and T2DM is considered a CVD equivalent, optimising health-promotion message delivery and receptivity in clinical practise remains a critical and fundamental challenge to reducing chronic disease risk [25]. Although controlled study is required, N.D. practise appears to be an established form of health-promotion counselling in medical practise.

Nutritional and herbal supplements are also frequently prescribed. Numerous nutritional supplements were recommended, and many of them have clinical trial evidence of efficacy in T2DM[26]; a review of the degree of evidence of nutritional supplementation utilised in naturopathic practise has been published elsewhere[27]. Unfortunately, due to the study's limited statistical power, the relative contribution of each supplement or combination of supplements to the observed changes in clinical risk factors cannot be determined; logistic regression analyses in larger, controlled samples would be required to identify promising supplements and/or supplement combinations.

At baseline, most patients' objective clinical risk factors were reasonably well managed; nevertheless, further improvements were noted over the course of N.D. therapy. Clinically significant changes in clinical risk variables have been seen in this group. An extra 0.65% drop in HbA1c leads to a 14% risk reduction for microvascular complications [28]. Furthermore, the observed SBP and DBP reductions are clinically significant; a 5 mm Hg reduction in SBP and DBP is comparable to estimates of blood pressure reduction achieved through lifestyle

modification and corresponds to approximately 25% and 50% reductions in relative risk of cardiovascular event, respectively. Although changes in the distribution of cholesterol measurements were not statistically significant, 25%-28% of patients improved by at least 10% in HDL and LDL, respectively. LDL reduction and risk reduction for coronary events have a nearly perfect linear connection, with a 1% drop in LDL equal to a 1% reduction in risk. 20,21 HDL elevations reduce additive risk, with a 1% rise in HDL equivalent to a 1% reduction in risk[29].

Although this study demonstrates that clinical risk factor improvements occur during N.D. therapy for T2DM, it has numerous significant limitations. Most importantly, because many patients use naturopathic treatments as supplemental care and patients choose N.D. services on their own, the generalizability of these findings in more varied groups is uncertain. Patients continuing with N.D. therapy for T2DM tend to be reasonably well managed, as demonstrated by the mean levels of clinical risk variables at the start of care (i.e., a relatively healthy cohort despite diabetes). This fact, together with the lack of a natural history or standard care control, shows that the stated

estimates of clinical change may be skewed. These findings are intentionally skewed in favour of individuals who have been receiving N.D. therapy for at least 6 months and who may be extremely motivated regardless of their exposure to N.D. care. Furthermore, the stated risk factor reductions are uncorrected estimates of change during the course of therapy, comparing baseline values to the most recent values in the medical file. As a result, they do not describe the long-term trend of change. Furthermore, we conducted studies on restricted risk variables with the assumption that other risk factors may change during the course of N.D. therapy and so remain unquantifiable by this study; similarly, our description excludes any measures of patient experience with N.D. care.

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Ongoing studies are in progress to evaluate risk factor changes longitudinally over time to determine the relationship, if any, between duration of care and the observed changes in risk factors and to determine the average rate of change. In addition, controlled, observational studies have just

begun to evaluate the promise of N.D. care in a more generalized, managed care patient population.

CONCLUSION

A research found that employing naturopathic treatments to manage diabetes had favourable effects. Yoga, pranayama, and walking can help you regulate your blood sugar, lower your risk of cardiovascular disease, and lose weight, all of which can help you improve your diabetes symptoms. Changes in diet have been demonstrated to not only manage diabetes but also improve overall health. By managing metabolic disturbance, a balanced diet can assist to reduce the chronic aetiology of diabetes.

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