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Fenugreek - Homoeopathic Remedy for Non-Insulin Dependent Diabetes Mellitus - A Clinical Trial

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Diabetes Mellitus is nowadays is most intractable common disease in the world. In spite of the rapid advancement of the medical science in terms of diagnosis, treatment the incidence of Diabetes mellitus is growing rapidly owing to sedentary life styles, rapid urbanization, faulty dietary practices throughout the world. India will be the diabetic capital in future as per the trend of the present statistics of Diabetes incidence. The modern medicines although controls the rise of the blood sugar in the circulation, onset of complication in the consequence of the disease progress, it can't provide the patient a permanent cure. In spite of the dietary restriction, medication the most of the diabetes patient shows a increase in the blood sugar both in fasting and post prandial level. That leads the patient to develop the serious complications in the form of Kidney, Heart, Eye, Skin and Neurological diseases, which once developed it will very difficult to treat. Patients with Diabetes are frustrated with the life long medications, dietary restriction, regulated life styles and looking for an alternative mode of treatment for curing their devastating illness. Most of the patients seeks advice from the homoeopathic physician for annihilating their disease. Homoeopathy the science of health developed by our Master Dr. C. F. S. Hahnemann also have wide scope in treating this incurable, rapid progressing disease, the diabetes mellitus. There are lots of homoeopathic drugs available in our Materia Medica for treating diabetes mellitus. Many researches are going on in the field of homoeopathy by different institutions including CCRH and other personalities to know the

hypoglycaemic activities of homoeopathic drugs and also to know the effectiveness of homoeopathic medicine in treating diabetes mellitus.

Out of the varieties of diabetes mellitus, homoeopathy has wide scope in treating non insulin dependent diabetes mellitus as in such cases B-Cell mass is preserved with lot of, patencies and there is no absolute insulin deficiencies.

Insulin dependent diabetes mellitus patients are excluded from the study as these patient needs exogenous insulin for their survival throughout their life owing to the B-Cell Mass destruction in the pancreas for various reasons out of which auto-immunity is one of the cause.

At present India has around 40.9 million diabetes patients and it is expected to rise to 69.9 million people by 2025 unless some urgent remedial measures are taken. Indians show increased insulin resistance, greater abdominal adiposity, lower adiponectin and high sensitive C-reactive protein. Death due to Diabetes complication such as coronary artery diseases, renal failure, blindness etc. are common nowadays.

Nowhere is the diabetes epidemic more pronounced than in India as the World Health Organization (WHO) reports show that 32 million people had diabetes in the year 2000. The first national study on the prevalence of type II diabetes in India was done between 1972 and 1975 by the Indian Council Medical Research (ICMR, New Delhi). Screening was done in

about 35,000 individuals above 14 yrs of age using 50 g glucose load. Capillary blood glucose level > 170 mg/dl was used to diagnose diabetes. The prevalence was 2.1 per cent in urban population and 1.5 per cent in the rural population while in those above 40 yr of age, the prevalence was 5 per cent in urban and 2.8 per cent in rural areas.

In 1988, a study done in a small township in south India reported a prevalence of 5 per cent. The prevalence of impaired glucose tolerance in the same study was 2 per cent. The Eluru survey which looked at the prevalence of known diabetes in four villages in Andhra Pradesh showed a prevalence of 1.5 percent.

A study done in 1988 in Chennai reported a prevalence of 8.2 per cent in the urban and 2.4 per cent in the rural areas. A subsequent study in the same urban area done after five years showed an age standardized prevalence of 11.6 per cent indicating a rising trend in prevalence of diabetes.

Dr. A. C. Homoeopathic Medical College and Hospital, Bhubaneswar is a pioneer institution in the field of Homoeopathy, the first model college in the country and has got accreditation for the research in the field of homoeopathy is not lagging behind to find a permanent solution for the suffering humanity with diabetes. Many researches are conducted by our Professionals, Post Graduate students to find an effective remedial measures for the diabetes by taking the present available medicines from our *Materia Medica* and also by preparing new medicines as per the literatures available by many authorities.

In the context to explore the facets to provide a reasonable effective treatment to the diabetes patient a research at the P.G. Dept. of *Materia Medica* was conducted by the P.G. students under the supervision and guidance of the author of this articles for two half years at Dr. A. C. Homoeopathic Medical College and Hospital, Bhubaneswar by taking 42 Nos. of NIDDM patients from the OPDs and IPDs of the hospitals after screening of all the routine investigations and diagnosis for the diabetes

mellitus with a aim to study the effects of Fenugreek, an Indian drug on the patients suffering from NIDDM.

Fenugreek is a self pollinated, small seeded annual legume, an erect, hardy annual plant growing in Indian subcontinent and Eastern Mediterranean region. Wide ranges of uses were found for Fenugreek in ancient times starting from Egyptian Ebers Papyrus 1500 B.C. to 5th century B.C. Greek Physician Hippocrates. Medicinally it was used for the treatment of diabetes mellitus. Wounds, abscess, arthritis, bronchitis, Digestive problems etc. Traditional Chinese herbalists used it for kidney problems and condition affecting the male reproductive tract. It is traditionally has been considered a carminative, demulcent, expectorant, laxative and stomachic etc. Its seeds have also been used as oral insulin substitute and seed extracts have been reported to lower blood glucose levels in the laboratory animals.

The medicinal uses of Fenugreek seeds have been known since ancient time. In Greek and latin pharmacopoeias Fenugreek seeds are described as possessing antidiabetic properties. In recent time, several preclinical and clinical studies have confirmed the antidiabetic activities of Fenugreek seeds. The hypercholesteric activities are also demonstrated in the seeds of Fenugreek.

At the National Institute of Nutrition, Hyderabad, controlled trials were carried out on the glucose lowering effect of fenugreek in normal and in diabetic subjects. When administered in a dose of 25gm, fenugreek seeds prevented the elevation of blood glucose in normal subjects following a glucose load. Serum insulin levels were also similarly altered. The leaf of fenugreek however, did not exhibit a similar property. The discrepancy is probably due to the presence of gum in the seeds, which is not destroyed during cooking.

The above studies show that fenugreek must have something in it, which makes it useful in treating diabetes mellitus. Most of the studies were conducted by taking crude fenugreek and the results were found with a good response.

Although Homoeopathy is a good therapeutic system, not much work has been done on fenugreek yet. So this is a trial work on fenugreek in its mother tincture form as it also contains the crude substance and further studies in potentized form may be done if found a good response.

The medicinal parts are the ripe, dried seeds. Fenugreek seed contains 45-60% carbohydrates, mainly Mucilaginous fiber (galactomannans); 20-30% proteins high in lysine and tryptophan; 5-10% fixed oils (lipids); pyridine-type alkaloids, mainly trigonelline (0.2-0.36%), Choline (0.5%), gentianine, and carpaine; the flavonoids Apigenin, luteolin, orientin, quercetin, vitexin, and Isovitexin; free amino acids, such as 4-hydroxyisoleucine (0.09%); arginine, histidine, and lysine; calcium and Iron; saponins (0.6-1.7%); glycosides yielding steroidal saponinins on hydrolysis (diosgenin, yamogenin, tigogenin, neotigogenin); cholesterol and sitosterol; vitamins A, B1, C, and nicotinic acid; and 0.015% volatile oils (n-alkanes and sesquiterpenes) 5,6. The seeds also contain the saponin fenugrin B, coumarin compounds, alkaloids (trigonelline, gentianine, carpaine).

The exact mechanism of antidiabetic action of the Fenugreek is still unclear and being studied. It is thought that the gel fibre present in the Fenugreek seeds, reduces the rate of glucose absorption and may also delay the gastric emptying thereby preventing the rise of blood glucose concentration following a meal. It is also presumed that antidiabetic effect of Fenugreek was thought to be due to formation of a colloidal type of suspension in the stomach and intestines when the mucilaginous fibre of the seed is hydrated, therefore affecting gastric intestinal transit slowing glucose absorption. Further there are different saponins which are found in Fenugreek seeds. Foliage, diosgenin, sterofen are also enriched in Fenugreek. Saponins in general form complexes with cholesterol and lipids cause haemolysis in vitro, solubilise various fatty substances and have anti-microbial activities and anti-tumour activity. The Fenugreek saponin alkaloid fraction used to reduce the blood sugar levels and prevent the urinary loss of sugar.

Seeing this antidiabetic, anticholesterol properties of the saponin alkaloid leads to study its effects of Fenugreek homoeopathically on the patients of non insulin diabetic mellitus.

Materials and methods

Aims and objectives: To study the effect of Fenugreek patients suffering from non-insulin dependent diabetic mellitus.

Planning : Forty two patients suffering from NIDDM were selected and screened for diabetic mellitus for the clinical findings and laboratory investigations. They were taken for the study at Dr. A. C. Homoeopathic medical College and Hospital, Bhubaneswar from the OPDs and IPDs of the hospital and study was carried for 2 & ½ years.

Patients of varying age, sex and body built, occupation and socioeconomic status were taken.

Diagnosis of the patient: The patients were diagnosed by taking the clinical symptoms and signs such as Polyuria, Polyphagia, Polydipsia, Weight loss, Tiredness, Malaise, Pruritus, Numbness, repeated infections, Pruritus vulva, Depression or loss of tendon reflexes at the ankle etc. along with the laboratory investigation for diabetes such as fasting, blood sugar, post prandial blood sugar and Random blood glucose estimation.

Selection of the patient: The patients are selected on the following basis:-

- 1) The patients those show signs and symptoms of diabetes mellitus.
- 2) A positive laboratory findings for diabetes such as fasting blood sugar overnight estimation more than 110 mg / dl or PPBS level more than 140 mg / dl.
- 3) Patients without showing any signs and symptoms of diabetes and accidentally diagnosed during the routine screening.

The insulin dependent diabetic patients were excluded in the study.

Methodology:

Case taking: The patients profile recorded in a standard format as per the homoeopathic principles taking consideration of biodata and specific information of the patients such as age, sex, marital status, occupation, religion, socioeconomic status, presenting features, past / family / personal history, treatment history, physical mental generals, systematic examinations. It also contains the datas on routine and special laboratory investigations to confirm the diagnosis. The case record includes the analysis, synthesis, evaluation and repertorial totality of each case.

Selection of medicines: Fenugreek the ant diabetic drugs was administered. Selection Potencies: Fenugreek mother tincture.

Route of administration: Oral route

Dose and repetition: 15 drops thrice daily.

Other ancillary measures: All the patients were advised to maintain strict dietary regimen / regular exercise to achieve optimal therapeutic goals.

Follow up and monitoring: All the patients were assessed for their subjective and objective progress of the disease. The symptomatic follow up accompanied by clinical and laboratory examinations.

Assessment of results: The results of the treatment were assessed in terms of their presenting symptoms and glucose levels in their blood and on the basis of commencement of complications.

Parameters of Assessment of Results:

All the results obtained were documented as per the standard criteria laid down by modern system of medicine in terms of -

Statistical analysis:

All the results obtained were analyzed statistically using various parameters such as percentage methods (graphs and charts) and chi-square tests for drawing the inference out of the study.

Observations:

All the 42 Nos. of patients were observed for study by administering Fenugreek mother tincture for 2 & V2 years at Dr. A. C. Homoeopathic Medical College and Hospital, Bhubaneswar. As per the literature review available in the text to support the facts such as age distribution, sex distribution, habitats, socioeconomic status, nature of works of patients, family history for diabetes and also to access the effects of Fenugreek on the diabetes in terms of age group wise success, on different sex, on pathological findings etc.

From the general observation it was confirmed that diabetic mellitus (NIDDM) cases were high on the patients leading on sedentary life styles, high socio-economic status, age distribution of the patients, positive family history, high incidence in cases of urban population, which supports the basic medical literature as available in the text.

1.	Marked improvement	When the symptomatic relief more than 70% and FBS levels remain in between 70-110 mg/dl.
2.	Moderate improvement	Symptomatic relief more than 50% and FBS level remains in between 110 to 140 mg/dl.
3.	Mild improvement	Symptomatic relief less than 50% and FBS level remains more than 140 mg/dl.
4.	Dropped out	No changes in symptoms or blood or urine levels for sugar and the patients left taking medicines.
5.	Aggravation	Worsening of the symptoms and/or increasing blood sugar level.

Out of 42 patients, 24 No. of patients had fasting blood sugar level in between 110 to 170 mg/dl, 16 patients have FBS between 170 to 280 mg / dl and two patients having FBS more than 280 mg / dl. After treatment 6 patients were having fasting blood sugar level less than 110 mg / dl., 30 patients having FBS 110 - 170 mg / dl. & 6 patients having FBS between 170 - 280 mg / dl.

Out of 42 patients, 22 patients had PPBS between 140 - 240 mg / dl., 8 patients had PPBS levels between 240 - 280 mg / dl. And 14 patients had PPBS more than 280 mg / dl.. After treatment the 15 No. of patients showed the PPBS level <140 mg / dl., 11 patients had 140 - 240 mg / dl., 6 patients had PPBS 240 - 280 mg / dl. And 10 patients had PPBS more than 280 mg. / dl.

From the various observations it was found that out of 42 patients 26 No. of patients were improved with a break up of 15 males and 11 females. For testing the effectiveness of medicines on NIDDM a statistical test chi-square test was taken up and analysed and it was found that Fenugreek is effective in a noninsulin dependent diabetic mellitus.

CONCLUSION

On seeing these encouraging results of Fenugreek on Non-Insulin diabetic patients homoeopathically by its mother tincture, it is high time for the homoeopathic physicians and researchers to find out a definite solution in order to provide a permanent cure to the suffering mankind with diabetic mellitus. We the homoeopaths can also play a positive role in providing beneficial results to such a dreaded incurable, complicated disease engulfing the human kind now a days with terror, depression, fear, either in form of cure for life or check the unset of complication for the longer period and show a hope to the diabetic world to live in the present universe without any fear, suffering and complication.

Nonetheless, researches on a new findings never go in vein, as is the case, it will undoubtedly be handy and useful to all of those who had a many question regarding the Fenugreek at the therapeutic end and will definitely be encouraging to entice the research aspirants for further research.