

Role of *Cephalandra indica* Q in the management of Diabetes Mellitus as an add-on medicine along with conventional antidiabetics*

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Abstract

Objective : To ascertain the role of *Cephalandra indica* Q, in the management of patients suffering from Diabetes mellitus (type I or type II) continuing on anti-diabetic treatment for maintenance of blood sugar levels and to identify its reliable indications.

Material and Methods : An open, prospective, observational study was carried out during the period July 1992 - March 2000; 96 patients with post-prandial blood sugar level more than 160 mg/dL even after taking anti-diabetic medicine were enrolled for the study. All the patients were administered with *Cephalandra indica* Q in the dosage, one drop per kilogram of their body weight. The dose was divided in three parts, mixed with one ounce of water and was given three times a day, until disappearance of all signs and symptoms along with control of Blood sugar level. Fasting and post-prandial blood and urine sugar levels were measured on every follow-up visit of the patient. Other required investigations were also conducted. All the patients were advised to take low calorie and high fibre diet, do regular physical exercise and to avoid physical and mental stress.

Results : Out of 96 patients registered, 88 patients were followed up. Mean FBS level of patients before treatment was 138.90 ± 24.388 (range 83 to 216 mg/dL) where as mean FBS after treatment was 115.86 ± 26.363 (range 64 to 202 mg/dL). Mean PPBS level before treatment was 265.08 ± 44.675 (range 178 to 386 mg/dL) where as mean PPBS after treatment was 204.75 ± 39.968 (range 116 to 341 mg/dL). Dosage of allopathic medicines was reduced in maximum number of patients but, it was completely withdrawn in 17 patients. There was improvement in signs and symptoms, along with decrease in recurrence: no recurrence in 9 patients, recurrence with less intensity in 55. The indications for *Cephalandra* also verified.

Conclusion : This study shows some positive role of *Cephalandra indica* Q in maintaining blood sugar level. Future controlled studies with *Cephalandra indica* alone vis-à-vis other conventional anti-diabetic medicines, by doing the required laboratory tests, are suggested to explore more about the hypoglycemic effect of *Cephalandra indica*.

Key words : homoeopathy; diabetes mellitus type-I; diabetes mellitus type-II; blood sugar; cephalandra indica

Introduction

Type-2 diabetes now presents as one of the great pandemics of the 21st Century. In some populations more than half of adults either already have the disease or are at high risk with evidence of impaired glucose tolerance, impaired fasting glycemia or metabolic syndrome. It affects all peoples but particularly some

of our rapidly developing groups. South Asians appear to have a particular predisposition to diabetes—and the Indian subcontinent will have nearly one-third of the world's type 2 diabetic people¹.

India already faces a grave problem with the largest number of subjects with diabetes (approximately 33 million in 2003) that is expected to escalate further, with the number increasing to 57 million in the year 2025 and over 80 million by the year 2030².

Cephalandra indica has been in use for treatment of diabetes in Ayurvedic system of medicine.³ The other

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names of this plant are *Coccinia indica*, *Momordica monodelpha*. It belongs to Family: *Cucurbitaceae*; Genus: *Cephalandra*; Specific epithet: *indica* - Naudin Botanical name: - *Cephalandra indica* Naudin (Ann. Sc. Nat. Ser. V. v. (1866) 16)⁴. This plant grows in a wild state abundantly in Bengal and in most parts of India⁴. It has been described by some as the 'Indian substitute for Insulin' and among the medical practitioners in Kolkata a strong belief exists as to its efficacy in glycosuria.³ Another study by Chopra and Bose⁴ shows that it contains an enzyme with amylolytic properties, a hormone and traces of an alkaloid and it produces no reduction of sugar in the blood or urine of patients suffering from glycosuria. Ghose⁵ introduced this medicine in homoeopathy through proving and gave few case reports about its usefulness in the treatment of diabetes mellitus in mother tincture.

A study conducted by Central Council for Research in Homoeopathy in the past on Albino rat model showed pancreatic beta cell- regeneration with the mother tincture of *Cephalandra indica*.⁶ This medicine lacks a thorough proving. On the basis of the concept '*that imperfectly proved remedies necessitate the use of names of the disease at times instead of the component symptoms that alone are the legitimate guide to the choice of the curative remedy*'⁷, this study was undertaken to ascertain the role of *Cephalandra indica* Q in maintenance of blood sugar levels in human subjects suffering from diabetes mellitus and to identify its reliable indications.

Aims and Objectives

The study was undertaken to ascertain the role of *Cephalandra indica* Q, in patients suffering from Diabetes mellitus and taking anti-diabetic medicine (conventional) for maintenance of blood sugar levels and to identify its reliable indications.

Material and Methods

Study design and centers

An open, prospective, observational study was carried out at Drug Standardization Unit (Homoeopathy), Hyderabad (Andhra Pradesh) from July 1992 to March 2000.

Inclusion criteria

Patient of Diabetes mellitus (type I or type II) on anti-diabetic medicines (conventional) and having post-prandial blood sugar level more than 160 mg/dL.

Exclusion criteria

Patients of diabetes mellitus and suffering from other chronic diseases or taking long-term treatment for any other chronic ailments.

Patients

Patients were screened from the O.P.D. of the unit as per predefined inclusion criteria. Ninety six (96) patients of both sexes (male= 52, female= 44) were included in the study. Eighty eight (88) of them were on anti-diabetic medicines whereas other 08 were on insulin. Detailed history of each patient was taken so as to help in drawing complete picture of the medicine from the patients responding to the medicine, at the time of conclusion of the study. Patients were followed up for minimum period of 4 months to maximum of 8 years.

Medication: potency, dose and repetition

All these patients were prescribed *Cephalandra indica* mother tincture (Q) in the dosage one drop per kilogram of their body weight. This was calculated from the study conducted by the Council on mouse model where it was found that one drop/kg body weight has therapeutic effect without any toxic effect⁶. Dose was divided in three parts, mixed with one ounce of water and was given three times a day, until disappearance of all signs and symptoms along with improvement in pathological parameters. All patients were also advised to continue their anti-diabetic medicine in consultation with their family physician.

Investigations undertaken

Regular pathological investigations were done to evaluate the status of disease in patient. Fasting and post-prandial blood and urine sugar levels were measured on every follow-up visit of the patient. Other required investigations were also conducted.

Source of medicine

Medicines were procured from M/s Hahnemann Publishing Co. Pvt. Ltd., Kolkata and M/s Ramakrishna Homoeo Pharmaceuticals, Hyderabad.

Non-medicinal management

Patients were advised to take low calorie and high fibre diet, do regular physical exercise and to avoid physical and mental stress.

Statistical analysis

Paired t-test is used to analyse the data using SPSS version 16.

Results

Out of 96 patients registered, 88 patients were followed up. Patients were treated for an average period of 42 months.

Cephalandra indica Q could manage fasting blood sugar (FBS) level better than Post-prandial blood sugar (PPBS) level. Mean FBS level before treatment was 138.90 ± 24.388 (range 83 to 216 mg/dl) where as mean FBS after treatment was 115.86 ± 26.363 (range 64 to 202 mg/dl). After treatment 25 patients had their FBS level within normal range (< 100 mg/dl) whereas 34 patients had their FBS level within amenable range (< 120 mg/dl), which is regarded as level free from complications.

Role of *Cephalandra indica* Q was less remarkable in controlling PPBS level. Mean PPBS level before treatment was 265.08 ± 44.675 (range 178 to 386 mg/

dl) where as mean PPBS after treatment was 204.75 ± 39.968 (range 116 to 341 mg/dl). After treatment only one patient had PPBS level within normal range (< 140 mg/dl) whereas 46 patients had their PPBS level within amenable range (< 200 mg/dl).

Dosage of allopathic (anti-diabetic) medicines was reduced in maximum number of patients but, it was completely withdrawn in 17 patients. Three patients, who were previously only on oral anti-diabetic medicines, became worse and required insulin after treatment.

At the time of enrollment patients presented with various symptoms and signs of diabetes mellitus like polydipsia, polyuria, polyphagia, itching, vaginitis, pruritis vulvae, cramps in legs, lassitude, weakness etc. After treatment there was relief in signs and symptoms (Table 2).

Table 1: Changes in blood sugar level after treatment

| | Before treatment (Mean value \pm SD*) | After treatment (Mean value \pm SD*) | Decrease after treatment (Mean value \pm SD*) | P value |
|------|--|---|--|---------|
| FBS | 138.90 ± 24.388 | 115.86 ± 26.363 | 23.03 ± 27.625 | .000 |
| PPBS | 265.08 ± 44.675 | 204.75 ± 39.968 | 60.33 ± 53.402 | .000 |

*SD: Standard deviation

Figure 1: Change in fasting blood sugar level

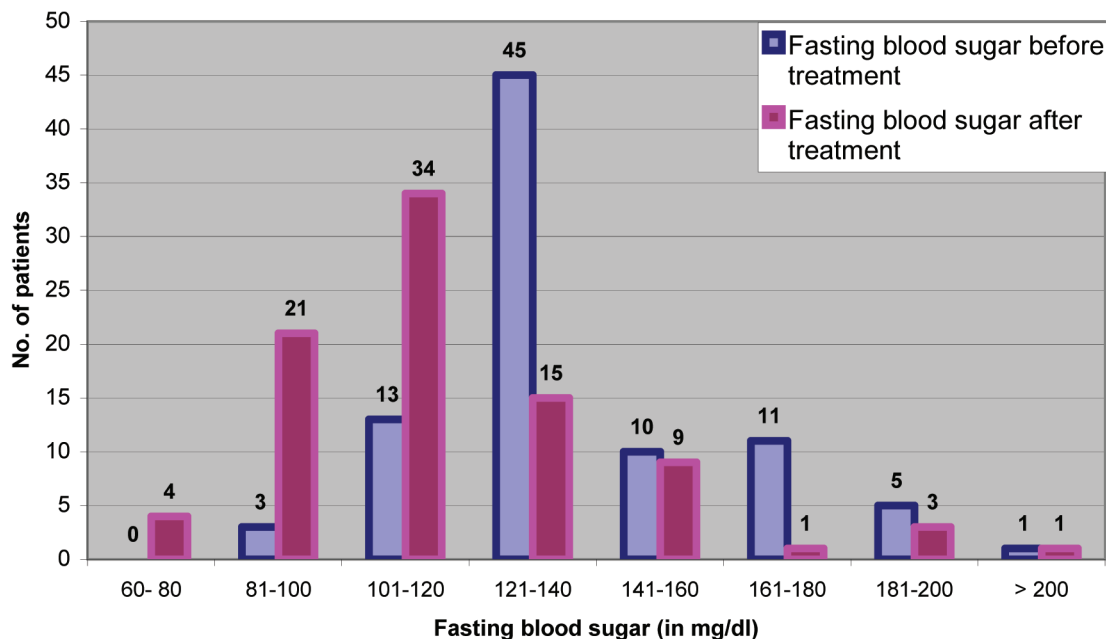


Figure 2: Change in post-prandial blood sugar level

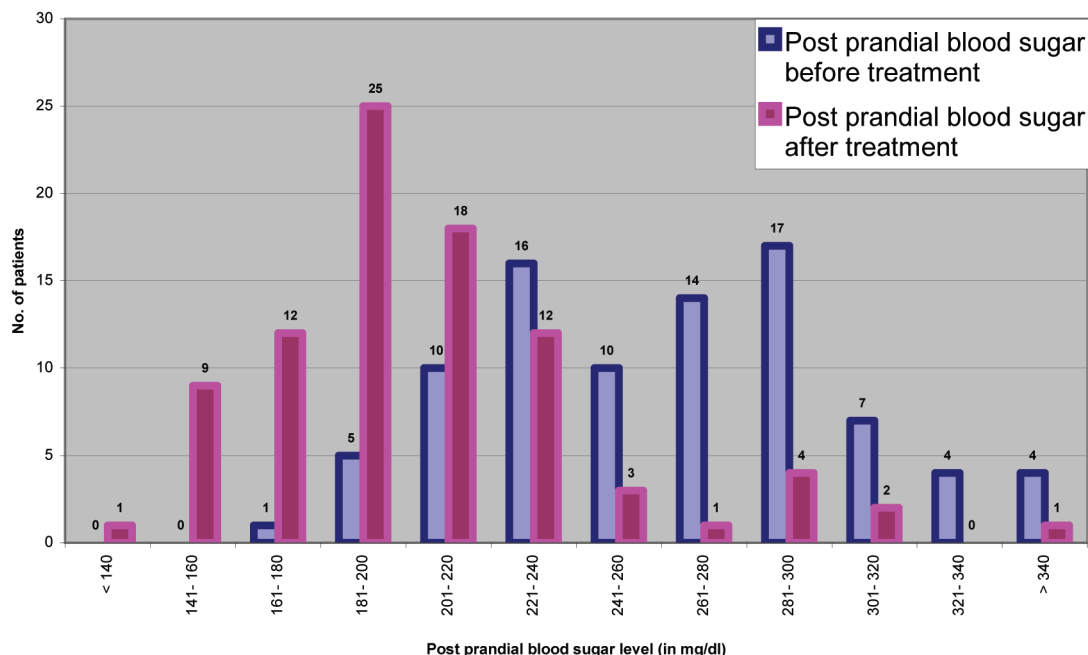


Table 2: Signs and symptoms relieved by *Cephalandra indica* Q

| Sign/symptoms |
|---|
| ● Morose |
| ● Fretful |
| ● Aversion to noise |
| ● Disinclined to do work |
| ● Weak memory |
| ● Burning sensation of whole body better by cold application. |
| ● Redness of face |
| ● Burning of face and eyes |
| ● Loss of appetite |
| ● Fullness of abdomen with distension |
| ● Pain in abdomen aggravated before and during stool |
| ● Giddiness aggravated after urination |
| ● Profuse urination |
| ● Presence of sugar in urine |
| ● Weakness / exhaustion after urination |
| ● Excessive dryness of month with thirst aggravated after urination |
| ● Pain in lower limbs, muscular tenderness in lower limbs intermittent claudication |

Discussion

There are several indigenous organ remedies (Indian drugs) in homoeopathic system which are used for treating patients suffering from diabetes on pathologic

similarity. The present Indian drug *Cephalandra indica* is one of them, which showed its usefulness in treating patients suffering from diabetes mellitus^{5,6}.

Keeping an eye on the safety of patients *Cephalandra* was administered as add on drug along with the conventional anti-diabetic treatment in this study. Where there was decrease in blood sugar level than the level prior to the administration of *Cephalandra*, the previous medication was reduced in a tapering manner, as per the advice of their attending physician.

As per the final assessment, mean decrease in fasting blood sugar is 23.034 mg/dl and post prandial blood sugar is 60.33 mg/dl. In a study comparing diabetics on low fat diet and low carbohydrate diet, while all were conventional medication, Bont et al⁸ found that mean levels had decreased by 0.3 mmol/l (5.4mg/dl) in the low fat group and by 0.5 mmol/l (9mg/dl) in low carbohydrate group. Therefore, hypoglycemic effect of *Cephalandra indica* Q as observed in this study, is more than the simple effect of dietary restrictions in lowering the blood sugar level.

The various symptoms and signs which were observed during the study are: morose, fretful, weak memory, disinclination to work, giddiness aggravated after urination; heat sensation ameliorated by cold application, burning of face / eyes, excessive dryness of mouth with thirst aggravated after urination, loss of appetite, redness of face, fullness of abdomen with distension, profuse urination, presence of sugar in urine, weakness / exhaustion after urination, pain in abdomen aggravated before and during stool. Same symptoms have been observed in a small proving of *Cephalandra indica* by Ghose.⁵

Cephalandra indica Q was found to control the fasting blood glucose level in 25 patients and decreased in 34 patients. In a similar study by Quereshi et al⁹ with *Gymnema sylvestra* and *Cephalandra indica* in mother tincture, on human subjects, it was found that the combination was able to decrease the blood glucose level but no effect was observed in serum insulin level. This study also reflects the positive results of in- vivo study on albino rats which showed the pancreatic b cell regeneration (histopathological finding).⁶ Clinical verification of *Cephalandra indica* conducted by Central Council for Research in Homoeopathy also showed the hypoglycaemic effect.¹⁰

Apart from changes in the blood glucose level, *Cephalandra indica* Q helped in relieving the various complications of diabetes like pain in lower limbs, muscular tenderness in lower limbs and intermittent claudication. This study shows that *Cephalandra* can be thought of in cases where symptoms persist even after administration of known hypoglycemic agents. *Cephalandra* was found to be more effective on

reducing fasting blood sugar level, which is the key indicator for development of complication in diabetics¹¹.

Though the use of *Cephalandra indica* in this study is not according to classical homoeopathy, yet according to Burnett¹² the use can be justified as a pathological similarity for the management of diabetes mellitus.

Conclusion

This study shows some positive role of *Cephalandra indica* Q in maintaining blood sugar level. The result could have been better assessed if glycosylated haemoglobin (HbA_{1c}) test had been done. Future controlled studies incorporating all required laboratory investigations including HbA_{1c} estimation may be taken up with *Cephalandra* Q alone vis-à-vis other conventional anti-diabetic medicines to explore more about the hypoglycemic effect of *Cephalandra indica*.

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