Comment

In alpha-chain disease a number of apparent cures have been obtained with cytotoxic drugs or tetracycline either alone or in combination with prednisolone.[2] Early diagnosis, at a stage when secreted free alpha chains may not be easily detectable, is therefore important. We have found that a sensitive immunofluorescence test of biopsy specimens can analyse individual plasma cells simultaneously for alpha chain and light chain production. This technique should contribute to early diagnosis.

We thank Professor J R Hobbs for the immunophoretic studies on urine, plasma, and jejunal juice.

[1] Seligmann M, Mihaesco E, Hurez D, Mihaesco C, Preud'homme J-L, Rambaud J-C. Immunochemical studies in four cases of alpha-chain disease. *J Clin Invest* 1969;**48**:2374-89.
[2] Seligmann M. Immunochemical clinical and pathological features of alpha-chain disease. *Arch Intern Med* 1975;**135**:78-82.
[3] Doe WF, Danon F, Seligmann M. Immunodiagnosis of alpha-chain disease. *Clin Exp Immunol* 1979;**36**:189-97.
[4] Gale DJJ, Versey JMB, Hobbs JR. Rocket immunoselection for detection of heavy chain disease. *Clin Chem* 1974;**20**:1292-4.

(*Accepted 22 January 1980*)

Departments of Medicine and Immunology, Royal Free Hospital, London NW3 2QG
J M RHODES, MRCP, research fellow
D P JEWELL, DPHIL, FRCP, senior lecturer in medicine
G JANOSSY, PHD, MD, reader in immunology

Treatment of diabetes mellitus with Coccinia indica

Coccinia indica is a creeper that grows wild and in abundance in Bengal. The plant has been used since ancient times for treating diabetes mellitus in the Indian system of medicine known as ayurvedha.[1] We report the findings of a double-blind controlled trial using the leaves of the plant to treat patients with untreated but uncomplicated maturity-onset diabetes.

Patients, methods, and results

Patients with diabetes mellitus attending the outpatient clinic of this institute were admitted at random to the trial if they gave informed consent. Only patients with uncontrolled and untreated diabetes were considered suitable for the study. Patients with ketone bodies in their urine or those who were thought to need immediate treatment with insulin were excluded.

The patients received at random either tablets made from the homogenised and freeze-dried leaves of *Coccinia indica* or placebo tablets prepared with chlorophyll, and were told to take three tablets twice daily for six weeks. They were also told to continue on the same diet as before, and not to take any other medication. An oral glucose tolerance test (50 g) was done at the beginning and at the end of the trial and fasting blood glucose concentrations were estimated during the trial for all the patients. Two doctors, unaware of which treatment had been given, classified the results of blood glucose estimations as showing marked improvement, mild improvement, or no improvement. When glucose tolerance became normal or almost normal the patient was classified as "markedly improved." The two groups of patients were comparable in respect of age, sex, weight, and severity and duration of diabetes.

Out of the 16 patients who received the *C indica* tablets, glucose tolerance considerably improved in 10, while none of those taking placebo showed such an improvement. This difference is highly significant (χ^2 with Yates correction = 11·7, $p < 0·001$). If patients who showed modest improvement are included, then 11 out of 16 in the group taking *C indica* tablets and three out of 16 on placebo showed improvement in glucose tolerance, a difference that is also highly significant ($\chi^2 = 9·9$, $p < 0·01$). The table shows the results of the glucose tolerance test in both groups of patients before and after treatment.

There was virtually no change in the following factors after treatment with either *C indica* tablets or placebo: weight, haemoglobin, differential and leucocyte counts, erythrocyte sedimentation rate, aspartate transaminase (SGOT), alanine transaminase (SGPT), urea, and serum concentrations of electrolytes. None of the patients showed renal injury.

Comment

This study shows that the leaves of *C indica* may be useful for the oral treatment of patients with maturity-onset diabetes mellitus, especially as there were no adverse effects during six weeks of use. This is not surprising because the plant is commonly used by the local Bengali population as a vegetable. The data show that the active principle is slow acting, since the maximum effect was obtained only after three weeks of treatment. Failure by some authors[2] to show any hypoglycaemic activity of the plant may be due to the short-term nature of their experiments. Mukherjee *et al*[3] showed that the plant had hypoglycaemic activity in alloxan-diabetic rats, concluding that the active principle of the plant may have insulin-like activity. Hyperglycaemia induced by somatotrophin and corticotrophin in albino rats can be reduced by parenteral administration of the alcoholic extract of the plant.[4] The plant has only traces of alkaloids.[5] Mukherjee[3] isolated from the plant a quarternary base that showed hypoglycaemic activity of short duration in guinea-pigs. Isolation of the active principle would open up many possibilities, especially as the plant is not toxic.

We are grateful to Dr M Ibrahim and Dr F U Mahtab for suggestions, and are especially grateful to Dr S C Truelove for help in preparing the manuscript. We thank Dr Md Shahabuddin, Mr Hanif, Mr Farid Hossain Miah, and Mr N G Banik for technical assistance. This work was supported by a grant from the Bangladesh Medical Research Council.

Requests for reprints should be addressed to Dr A K Azad Khan.

[1] Chopra RN, Chopra IC, Handa KL, Kapur LD. *Indigenous drugs of India*. 2nd ed. Calcutta: UN Dhur and Sons, 1958:314-16.
[2] Bhakuni DS, Dhar ML, Dhar MM, Dhawan BN, Mehrotra BN. Screening of Indian plants for biological activity II. *Indian J Exp Biol* 1969;**7**:250-62.
[3] Mukherjee K, Patra B, Sikder S, Dasgupta SR. Preliminary observations on the pharmacological properties of a water soluble alkaloid of Coccinia indica Linn. *Indian J Pharmacol* 1972;**4**:114.
[4] Gupta SS, Variyar MC. Experimental studies on pituitary diabetes. Part 4: Effect of Gymnema sylvestre and Coccinia indica against the hyperglycaemic response of somatotropin and corticotropin hormones. *Indian J Med Res* 1964;**52**:200-7.
[5] Khuda MQ, Khaleque A, Wahed Miah MA. Chemical investigations on Cephalandra indica Naud. *Science Research* 1965;**2**:27-31.

(*Accepted 3 January 1980*)

Bangladesh Institute of Research and Rehabilitation in Diabetes, Endocrine and Metabolic Disorders (BIRDEM), Dacca, Bangladesh
A K AZAD KHAN, DPHIL, MB, consultant, department of clinical pharmacology
S AKHTAR, MSC, research assistant, department of clinical pharmacology
H MAHTAB, MB, DTM&H, medical director

Blood glucose levels in the two treatment groups

	Group receiving placebo			Group receiving tablets made from *Coccinia indica*		
	Fasting	1 hour after 50 g oral glucose	2 hours after 50 g oral glucose	Fasting	1 hour after 50 g oral glucose	2 hours after 50 g oral glucose
At beginning of trial	195·4 ± 51·9	281·1 ± 48·3	255·1 ± 58·6	178·8 ± 50·6	268·1 ± 39·3	245·4 ± 41·4
One week after entry	175·0 ± 49·5			133·4 ± 50·3		
Three weeks after entry	177·4 ± 50·5			117·9 ± 46·5		
At end of trial	181·3 ± 50·7	267·6 ± 57·0	252·0 ± 63·4	122·1 ± 46·5	224·9 ± 55·8	186·9 ± 54·9
t*	1·45	1·22	0·04	3·47	2·39	3·23
p	NS	NS	NS	<0·01	<0·05	<0·01

*Paired t test for findings at beginning and end of trial.
Values given as the means ± SD.