

LETTER TO THE EDITOR

BENEFICIAL EFFECT OF INULA RACEMOSA (PUSHKARMOOLA) IN
ANGINA PECTORIS : A PRELIMINARY REPORT

Sir,

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Pushkarmoola (*Inula racemosa*) is advocated as a remedy for the treatment of cough, dyspnoea and chest (precordial) pain. It has been also extensively used as a single drug or in compound drug formulations, for heart diseases (4). Alanatolactone has been isolated from the essential oil of the root and has been reported to be anthelmintic (3) and antifungal (6). The drug has been demonstrated to offer protection against histamine induced bronchospasm (5) and to have hypoglycaemic and hypocholesterolaemic property (7).

We have made a preliminary study to evaluate that how far *Inula racemosa* can be used as a drug to prevent/correct ST-segment and T-wave changes in patients of ischaemic heart disease in comparison with nitroglycerin as a reference drug.

A series of 9 patients, having classical clinical picture of ischaemic heart disease and positive electrocardiographic changes showing ischaemia in post-exercise E.C.G. tracings was selected for the study. A set of three electrocardiograms was recorded in each case to evaluate the comparative response to the drug in comparison with nitroglycerin, each set having a resting and a post-exercise record. Set 1 : (i) Resting E.C.G. taken at 8 A.M. after light breakfast, ii) Post-exercise E.C.G., taken after "two step" (Master) test, exercise being continued upto the point of maximal tolerance (suggested by chest pain, exhaustion, third heart sound or a new murmur). Set 2 i) Resting E.C.G. taken on next day as in set 1. ii) Post-exercise E.C.G. with sublingual Angised (Nitroglycerin 5 mg): 3 min after administration of drug the patient was given the same magnitude of exercise as on the previous day and the E.C.G. taken. Set 3 : i) Resting E.C.G., taken on third day as in set 1, ii) Post-exercise E.C.G. with *Inula racemosa* treatment. The patient was given 3 gms of *Inula racemosa* powder orally. After 90 min. he was asked to take same magnitude of exercise as before and the E.C.G. recorded. In all sets a 12-lead, E.C.G. was used.

All the nine patients under observation were male, ranging between 40-60 years of age having classical clinical picture of ischaemic heart disease, i.e. precordial pain on effort. Resting E.C.G. was within normal limits in them but post-exercise E.C.G. showed

depression of ST-segment, particularly in ventricular leads. Prior administration of nitroglycerin or the drug under trial, exercise was tolerated better with reduction in ST-segment depression. The details of E.C.G. pattern is given in Table I which shows the effect of test drug and nitroglycerine.

TABLE I: Mean area of ST-segment depression (mm²) in relevant leads with exercise in untreated patients of angina pectoris and after treatment with drugs.

S. No.	Treatment group	Leads								
		L _I	L _{II}	L _{III}	aVL	aVF	V ₃	V ₄	V ₅	V ₆
1.	Resting	0.0	1.8	1.6	0.33	2.33	0.0	0.14	0.5	1.2
2.	Post-exercise	3.4	3.2	3.6	4.67	3.0	4.5	6.71	5.67	5.4
3.	Post-exercise after Nitro-glycerin	1.67	3.0	3.0	3.67	3.0	1.33	4.0	4.0	3.3
4.	Post-exercise after <i>Inula racemosa</i>	1.2	1.4	1.6	3.0	1.67	0.75	1.71	2.0	1.6

Figures are mean values from a total of 9 cases.

All cases under trial were proved cases of ischaemic heart disease with usual clinical as well as electrocardiographic evidence of disease process. Post-exercise electrocardiograms revealed significant ST-segment depression in all the cases and the same could be prevented by the prior treatment with *Inula racemosa* and the results were comparable with those of nitroglycerin. Given exercise was tolerated with fewer E.C.G. changes after the drugs.

Kimura *et al.* (2) reported that ST-segment depression appears when coronary flow is reduced to one-third of the resting value. The exact mechanism of ST-segment depression is disputed. Previously it was thought to be of metabolic origin, but now the emphasis is on the potassium efflux (1). While no inference can be drawn about the mode of action, *Inula racemosa* may have a coronary vasodilator effect or an effect on ionic fluxes.

Beneficial action of nitroglycerin lasts for a period of 15-30 minutes and the effect begins within 3 min of its sublingual administration. *Inula racemosa* (being in crude form) has been administered 90 minutes earlier and a pharmacological action has been observed.

Inula racemosa seems to be a promising drug to be used in the treatment of ischaemic heart disease. Also its reported hypocholesterolemic effect would be an additional advantage, if confirmed.

Inula racemosa along with *C. Mukul* is under clinical trial in patients of Ischaemic heart disease at this centre.

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