J.R.A.S. Vol. XXII, No. 3-4(2001) pp. 208-215

EFFECT OF AN AYURVEDIC COMPOUND DRUG (*TRIPHALA GUGGULU*) - IN DIABETIC RETINOPATHY

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(Received on 28.09. 2000)

A study was conducted to evaluate the efficacy Triphala Guggulu in Diabetic retinopathy. The study was carried out on sixty eye's of thirty cases which were divided in two groups viz. Gr. I, i.e., placebo group (P) and Gr. II, i.e., Ayurvedic drug treated group (T) respectively. After diagnosing the group II (T) cases were treated with Triphala guggulu capsules, 2 caps, bid with water for 3 months (weighing 500 mg each cap.) and instructed to control their blood sugar by the drug and diet both. After 3 months of therapy, a significant improvement was observed in each component of diabetic retinopathy.

Introduction

Diabetes mellitus, a disorder of carbohydrate metabolism is characterized primarily by hyperglycaemia and glycosuria with secondary anamolies of the metabolism of the proteins and fats. Diabetic retinopathy is one of the commonest complications of diabetes. It is a major cause of blindness in developed as well as developing countries.' So far no effective medical management is available except photocoagulation and vitreous surgery in later stages only, which also can not check the disease process. Apart from effective management of diabetes mellitus, drugs like aldose reductase inhibitors, antiplatelet agents (P. Raskin *et al.*, 1992), ace inhibitors like captopril, nterferon , vasodilators and growth inhibitors are in use with unpredictable results. So there was a great need to findout a drug which can be effective in the management of diabetic

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retinopathy. In ayurvedic classics, various herbal and herbo-mineral preparations have been described which improves vesion irrespective of the cause. *Triphala guggulu* is one of them which is used extensively in *Ayurveda* for impairment of vision.

Triphala Guggulu is a compound herbal drug consisted of *Haritaki* (*Terminalia chebula* Retz.), *Vibhitaki* (*Terminelia belerica* Roxb.), *Amalaiki* (*Emblica officinalis* Gaertn.), *Pippali* (*Piper longum* Linn.) and *Guggulu* (*Commiphora mukul* Hook ex. Stocks). In various ayurvedic classic the drug has been used extensively in *Gandmala* (cervical lymphadinitis), *Shotha* (inflammatory oedema), *Netraroga* and *Prameha* (Diabetes) and *Medoroga* (lipid disorders), loss of vision etc. Clinically the drug has exhibited hypolipidaemic activity (Paranjpe *et al.*, 1995 & N.D. Patil *et al.*, 1995). The effect of drug was also studied in obese patients, a significant weight loss was observed (P. Kulkarni *et.al.*, 1995).

Materials and Methods

Thirty patients of NIDDM (15) as well as IDDM (15) were included in this study. The study was conducted in the department of Shalya Shalakya and upgraded department of Ophthalmology, Institute of Medical Sciences, Banaras Hindu University, Varanasi, India.

Before enrolling the patients, they were thoroughly examined with the help of various diagnostic procedures like direct/indirect ophthalmoscopy, flourscein angiography, fundus photography, lipid profile and visual acuity. The patients were graded according to Lee Pe. *et al.*, (1966) classification.

The patients of ayurvedic drug treated (T) group were kept on *Triphala Guggulu* capsules, 2 caps. (each weighting 500 mg) twice a day with water in addition with anti-diabetic treatment, they had already been taking. The patients of placebo group (P) were given placebo capsules containing charcoal powder in the same doses. Regular follow up was done, at an interval of one month for three months. The mean grades of each visit of each component of retinopathy were recorded and compared with the baseline values of initial visit.

Results

To evaluate the efficacy of the drug *Triphala Guggula* on various components of retinopathy, comparison of mean grades between pre-treatment and post-treatment was made. The comparative mean grade values are given in Tables 1.

Table 1

Mean grades of fundus lesion at entry

Fundus leatures group	Angiopathy (A)				Exudates (E)		Proliferative retinopathy		Vit. hemor-rhage
	Vd.	Ma.	Hm.	Nv.	He.	Se.	Pa.	Pn.	Vh.
P Group	2.20 ± 0.55	1.73 ± 0.58	2.67 ± 0.76	1.16 ± 1.02	2.13 ± 1.06	1.60 ± 0.27	1.23 ±1.07	1.03 ±0.96	0.37 ± 0.67
T Group	2.07 ± 0.52	1.47 ± 0.73	2.23 ± 0.68	0.87 ± 0.97	1.37 ± 1.07	0.83 ± 1.05	0.63 ±0.92	0.47 ±0.82	0.97 ±0.99

Table 2

Mean grades of fundus lesion after ninety days therapy

Fundus features group	Angiopathy (A)				Exudates (E)		Proliferative retinopathy		Vit. hemor rhage
	Ve.	Ma.	Hm.	Nv.	He.	Se.	Pa.	Pn.	Vh.
P Group	2.60 ± 0.52	2.27 ±0.45	2.77 ± 0.43	2.07 ±0.83	2.53 ±1.17	1.90 ±0.99	1.33 ±0.84	1.23 ±0.82	0.73 ±0.74
T Group	2.00 ± 0.48	1.40 ±0.62	1.37 ±1.03	1.03 ±0.85	0.97 ±0.96	0.70 ±0.84	0.53 ±0.77	0.37 ±0.61	0.80 ±0.61

Vd. = Venous dilatation, Ma = Micro aneurysms, Hm = Hemorrhages, Nv. = Neovascularisation, He = Hard exudates, Se = Soft exudates Pa = Proliferative angiopathic changes, Pn = Prol. nonangiopathic changes and Vh = Vitreous hemorrhages

Effect of drug on visual acuity : Visual acuity of each patient was recorded before the administration of the drug at the end of therapy. A comparison was made between both visual acuities for a gross change in Table 3 & 4.

Table 3
Distribution of patients according to visual acuities of both the groups at the entry

Visual acuity	Number of eyes		Total number of eyes (30+30)	Percentage
	Gr. (P)	Gr. (T)		
6/6	1	6	7	11.67
6/6P-6/60	24	22	46	76.66
5/60 – H.M.	5	2	7	11.67

Table 4

The effect of *Triphala Guggulu* after 90 days

Results	Group P		Group T	
	Number	Percentage	Number	Percentage
Improvement	7	23.33	14	46.67
Worsening	10	33.33	6	20.00
No change	13	43.33	10	33.33

Note : Improvement of vision by at least one line on Snellen's Chart.

Table – 5
Biochemical / Metabolic characteristics showing pre and post treatment

Constituents	Mean ± S.D.			
	(P) group		(T) group	
	Pre. treat.	Post. treat.	Pre. treat.	Post. treat.
S. cholesterol	237.03 ± 29.66	244.18 ± 18.31	233.65 ± 37.33	205.35 ± 24.46
Serum LDL	142.91 ± 23.71	148.30 ± 25.64	140.07 ± 21.40	117.82 ± 42.58
Serum T.G.	127.96 ± 30.20	129.20 ± 29.89	132.35 ± 40.63	118.42 ± 24.67

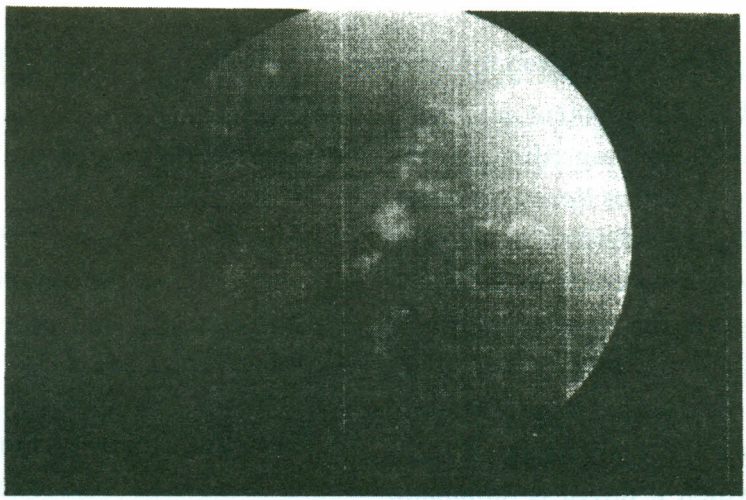

Fig. 1 : Fundus (background diabetic retinopahty) showing Dot / Blot hemorrhage's exudates and dilated veins

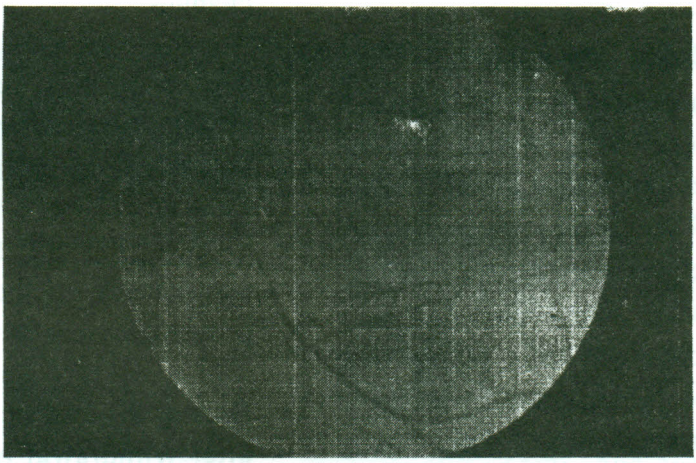

Fig. 2 : Fundus after 90 day's therapy

Discusssion

Triphala Guggulu an ayurvedic compound drug is a potent anti-idant. In *Ayurveda* all the ingredients of the drug are mentioned as *Rasayana* which are natural anti-oxidants. The *Amalaki* being richest source of vit-C[13] which prevents pericytic loss of capillary endothelium by which the drug prevents microaneurysms and hemorrhages. The drug having *Kasaya Rasa* by which it prossess *Stambhan* i.e. hemostatic property preventing the retinal hemorrhages. The drug is very well known for its lipid lowering and anti-inflammatory effects. It decreased serum cholesterol, serum triglycerides and serum LDL levels by 11.50%, 12% and 15% respectively (P. Paranjpe et, al. 1995 and N. D. Patil *et al.* 1995). The drug prosesses fibrinolytic (Indian J. Med. Res., 1979). hypolipidaemic and anti-inflammatory property (East Pharm., 1979). By these properties, the drug prevents atherosclerosis (Rheumatism, 1979), enhances capillary microcirculation thus preventing capillary occlusion, retinal hypoxia and neovascularisation. The drug effectively regresses exudates, reuduces retinal and macular oedema, improves significant visual acuity.

Conclusions

Clinical study highlights the role of *Triphala Guggulu* on the course of diabetic retinopathy. It was found that–

- The drug catalysed the process of absorption of the retinal and vitreal hemorrhages and prevented their recurrence also.
- The drug catalysed the absorption of hard and soft exudates and prevented their further progression.
- The drug also showed a trend of retardation of the components like venous dilatation, microaneurysms, neovascularisation and proliferative changes.
- The drug has reduced serum cholesterol, serum triglycerides, and serum LDL levels significantly.
- The drug has improved significant visual acuity of the eyes showing progressive loss of vision.
- During the course of therapy and after withdrawal of the drug, no adverse effects were noted.

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सारांश

डायबेटिक रेटिनोपैथी में आयुर्वेदिक योग (त्रिफला गुग्गुलु) के प्रभाव पर अध्ययन

ए. के. सिंह., एम. साहू एवं श्रीकान्त

प्रस्तुत अध्ययन में डायबेटिक रेटिनोपैथी के कुल 30 रोगियों की 60 आँखों पर विभिन्न औषध वर्गों के अंतर्गत चिकित्सकीय अध्ययन किया गया। प्रथम वर्ग के रोगियों को प्लैसीबों चिकित्सा तथा द्वितीय वर्ग के रोगियों को आयुर्वेदिक योग (त्रिफला गुग्गलु) का प्रयोग कराया गया। दोनों वर्गों में 3 महीने की चिकित्सा के उपरान्त तुलनात्मक अध्ययन किया गया। तुलनात्मक अध्ययन के दौरान आयुर्वेदिक योग (त्रिफला गुग्गुल) वाले वर्ग के रोगियों में प्लैसीबो वर्ग वाले रोगियों की अपेक्षा डायबेटिक रेटिनोपैथी के विभिन्न घटकों में महत्वपूर्ण सुधार पाया गया। किसी भी वर्ग में कोई भी रोगी ऐसा नहीं था जिसको इस चिकित्सा से लाभ न हुआ हो तथा चिकित्सा अवधि में किसी भी रोगी को औषधि के दुष्प्रभाव का शिकार भी नहीं होना पड़ा।