

Original Article

Alfagin: A herbal product beneficial in Hypercholesterolemia

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ABSTRACT

Objective: To determine the effects of herbal drugs in Hypercholesterolemia.

Study Design: Experimental Study.

Place and Duration of Study: This study was conducted in the Department of Pharmacology, University of Karachi from Jan. 2007 to Dec. 2008.

Materials and Methods: In the present study experiments regarding lipid profile were performed on rabbits of either sex, the calculated dose was administered for 30 days and 60 days (High dose and low dose group).

Results: Alfagin possess wide therapeutic range and is comparatively safe, animals of neither group showed no gross toxicity. No death occurred in control and test animals.

Discussion: Alfagin has been shown having, lowering capability of cholesterol.

Conclusion: It has been concluded that Alfagin is beneficial in hypercholesterolemia.

Keywords: Alfagin, Hypercholesterolemia, Herbal Drug.

INTRODUCTION

Herbal remedies and extracts are traditionally being used and available world wide for the treatment of many diseases, since natural products have played and continue to play an invaluable role in the process of drug development^(1,2,3). The use of plants in drug discovery and development is less time consuming and cheaper^(4,5). The term herb is used to refer not only herbaceous plants but also to bark roots, leaves, seeds flowers and fruits of trees⁶. Among the first active principles to be isolated were strychnine, morphine, atropine, papaverine and colchicines⁽⁷⁾. Herbal drugs have been extensively used in developed countries as well because patients are now looking for alternative and less invasive approaches to health care⁸. Currently about 122 clinically useful prescription drugs derived from 94 plant species are used worldwide for the treatment of diseases⁹. Plants have been used for the development of herbal remedies as alternative therapy e.g. cranberry Echinacea, few garlic, ginko, St. John's Wort, Saw Palmetto, Valerian Goldenseal, Ginseng.^{9,10,11}

Today the use of herbs and herbal extracts for the treatment of disease is an established therapeutic modality although much of the science behind it is still in its infancy nevertheless, modern medicine also benefited from the plants of therapeutic importance and many drugs are derived from natural resources.

Alfagin (Herbal Product)

Alfagin is a unique preparation of an original formulation composed solely of bioactive medicinal herbs, free of any synthetic chemicals and developed in the laboratories of Herbiion.

Alfagin increases muscle strength, physical work capacity and helps in overcoming fatigue by enhancing oxygen metabolism, due to its powerful adaptogenic properties, it provides resistance against stress and strain. It is also used in mental exhaustion, nutritional deficiencies, geriatric disorders, convalescence and anorexia.

Alfagin also simulates and stabilizes the central nervous system; it improves adaptability increases tolerance against infections and promotes self-recovery against disease, the composition of Alfagin is Ginseng (*eluthrococcus senticosus*), *Medicago sativa* (alfalfa), *Embilica officinalis* (*emibilica myrobalan*) and *Trigonella foenum gracum* (fenugreek). Each 5ml elixir contains

S. No.	Name of Ingredients	Quantity	
	Extract of:		
01	Ginseng	125.00	mg
02	Medicago Sativa	250.00	mg
03	Embilica Officinalis	400.00	mg
04	Trigonella	250.00	mg
	Excipients:		
01	Sucrose	3.50	gm
02	Glycerin	0.05	ml
03	Citric Acid	6.00	mg
04	Malt extract	500.00	mg
05	Methyl paraben	5.00	mg
06	Propyl paraben	1.00	mg
07	Propylene glycol	0.0012	ml
08	Essence of orange No. 9627	0.003	ml
09	Essence of Strawberry	0.003	ml
10	D.I. Water q.s.	5.00	ml

MATERIALS AND METHOD

This study was carried on 54 healthy white rabbits of either sex weighing from 1800 to 2000 grams. All animals were equally divided into six groups two group served as control while other four received normal and high doses of Alfagin syrup, before administration of drug apparent health of these animals was monitored during the conditioning period under laboratory environment for a week specifically noting loss of hair, diarrhea, edema, ulceration and lack of activity. All animals were given standard diet prepared in the laboratory and water.

Dosing: Alfagin was administered in the normal dose of 0.25 ml/kg (prescribed dose 10ml) twice a day and 0.5 ml / kg high dose for a period of 30 and 60 days orally, the control group received saline orally.

Sample Collection: Blood samples of about 7 C.C. were collected from these animals through cardiac puncture technique after completion of dosing period on 30th day and in other group on 60th days to perform various biochemical tests.

Assessment of Gross Toxicities: The gross toxicities were observed every one week after the administration of the drug. The number of animals died during there intervals was also noted.

Autopsy was performed after random selection after the completion of dosage. The remaining survived animals were left to observed changes after drug free interval of 15 days.

Biochemical Testing: Serum were immediately separated out by centrifuging (Heraeus Christ LaboFuge A) blood samples at 4000 upon for about 8 minutes and parameter were analysed within three hours of sample collection on vital lab eclipse automatic analogue (Merk) at 37°C.using standard reagent kits supplied by Merk.

Lipid profile including cholesterol, triglycerides, HDL, VLDL, LDL, were estimated as mentioned in the table No. 1 and No.2.

RESULTS

Lipid Profile

Table No. 1 reveals the comparison of cholesterol, triiglycerides, HDL, VLDL and LDL following 30 days administration of Alfagin syrup in normal and high doses. Animals of both groups showed highly significant decrease in cholesterol i.e. 40.44 ± 1.4 mg/dl and 40.89 ± 1.2 mg/dl respectively as compare to control animals i.e. 55.44 ± 2.42 mg/dl, however decrease in triglycerides was insignificant in both animal groups. Animals kept at high dose showed significant decrease in HDL i.e. 12.68 ± 0.045 mg / dl as compared to animals of control group i.e. 12.56 ± 0.80 mg/dl. The changes in VLDL and LDL level in

both animal groups were insignificant in comparison to control.

Table No. 1: Comparison of lipid profile following Administration of alfagin syrup in Normal and high dose for 30 days

Parameters mg/dl	Animals Groups		
	Control	Alfagin-Nd	Alfagin-Hd
Cholesterol	55.44 ± 2.42	$40.44 \pm 1.40^{**}$	$40.89 \pm 1.20^{**}$
Triglycerides	67.56 ± 3.30	61.11 ± 1.20	65.89 ± 4.30
HDL	12.56 ± 0.80	12.78 ± 0.46	12.68 ± 0.045
VLDL	13.51 ± 0.75	12.22 ± 0.24	13.18 ± 0.86
LDL	25.33 ± 1.85	24.00 ± 1.10	24.22 ± 0.8

n = 9

Average values $\pm$ S.E.M

*p <0.05 significant as compared to control

**p <0.005 highly significant as compared to control

Table No. 2: Comparison of lipid profile Following administration of alfagin syrup in Normal and high dose for 60 days

Parameters mg/dl	Animals Groups		
	Control	Alfagin-ND	Alfagin-HD
Cholesterol	86.89 ± 3.20	$56.22 \pm 2.20^{**}$	$46.56 \pm 1.20^{**}$
Triglycerides	35.78 ± 0.66	34.56 ± 1.40	34.8 ± 1.20
HDL	17.11 ± 0.63	16.44 ± 2.0	14.44 ± 0.88
VLDL	7.16 ± 0.15	6.91 ± 0.29	6.53 ± 0.23
LDL	16.00 ± 0.58	14.33 ± 1.10	$13.89 \pm 0.25^*$

n = 9

Average values $\pm$ S.E.M

*p <0.05 significant as compared to control

**p <0.005 highly significant as compared to control

Table No. 2 shows the comparison of lipid profile following 60 days of drug administration in normal and high doses. Animals of both groups showed highly significant decrease in cholesterol i.e. 56.22 ± 2.20 mg / dl and 46.56 ± 1.20 mg/dl respectively as compared to control animals i.e. 86.89 ± 3.26 mg / dl. There was no significant change in triglycerides at normal dose i.e. 34.56 ± 1.40 mg / dl and at high dose 34.8 ± 1.20 mg/dl as compared to control i.e. 35.78 ± 0.66 mg/dl. Animals of both groups normal and high dose revealed no significant change in HDL i.e. 16.44 ± 2.00 mg/dl and 14.44 ± 0.88 mg/dl. as compared to animals of control group i.e. 17.11 ± 0.63 mg/dl. 7.16 ± 0.15 mg / dl.

Similarly VLDL of both dose groups remains unchanged. Animals at normal dose showed insignificant decrease in LDL i.e. 14.33 ± 1.10 mg/dl and animals at high dose revealed a highly significant decrease in LDL i.e. 13.89 ± 0.28 mg/dl with respect to control value i.e. 16.89 ± 0.58 mg/dl.

DISCUSSION

Alfagin is a unique preparation composed of bioactive medicinal herbs including ginseng, alfalfa, embilica officinalis and triognella graecum this product is free of any synthetic chemicals. Animals of neither group showed gross toxicities at any time during the total period of experiment. Increase in weight might be due to ginseng a bioactive herb which contain a mixture of steroids¹¹. Similarly Raltan reported that ginseng improved health and prevent aging¹² this was further supported by other studies¹³. Increase in weight of animals might be due triogonella foerum graecum which has protein concentrate¹⁴.

Table 1 shows the comparison of cholesterol, triglycerides, HDL, VLDL and LDL after the administration of Alfagin for 30 days. Animals at both doses normal and high showed highly significant decrease in cholesterol i.e. 40.44 ± 1.40 mg/dl and 40.89 ± 1.20 mg/dl respectively as compared to control other parameters such as triglycerides. VLDL and LDL did not show any significant change.

Table 2 shows lipid profile following 60 days of drug administration, animals of both groups on Alfagin showed highly significant decrease in cholesterol i.e. 56.22 ± 2.20 mg/dl and 46.56 ± 1.20 mg/dl as compared to control while a significant decrease in LDL i.e. 13.88 ± 0.28 mg/dl was found at high dose as compared to control. These findings support that Alfagin possess hypocholesterolemic activity.

Studies done by Mailnow et al in 1976 also showed cholesterol lowering activity of alfalfa^{15,16}. Studies by Morley and Molgard revealed that alfalfa binds to bile acids required for cholesterol absorption from gut^{17,18} Emblica officailis also has a significant role in lowering serum lipid levels^{19,20,21}.

CONCLUSION

Alfagin (a herbal product) has been formed to effect lipid profile. It is a helpful drug to lower raised blood cholesterol, however, further studies and recommended. The data collected showed be verified in humans also.

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