Journal of Medical Sciences

ISSN 1682-4474

science alert

ANSInet
an open access publisher
http://ansinet.com

Research Paper

JMS (ISSN 1682-4474) is an International, peer-reviewed scientific journal that publishes original article in experimental & clinical medicine and related disciplines such as molecular biology, biochemistry, genetics, biophysics, bio-and medical technology. JMS is issued four times per year on paper and in electronic format.

For further information about this article or if you need reprints, please contact:

Dr. Arsala Mansoor
Department of Biotechnology
and Informatics
BUITMS, Samungli Town
Quetta, Pakistan

J. Med. Sci., 4 (3): 176-178
July-September, 2004

Antihypertensive Effect of *Gentiana olivieri*

Arsala Mansoor, [1]Mudassir I. Zaidi, [2]Mumtaz Hyder and [3]Rehana Rasheed

Presence of biologically and pharmacologically active non-toxic alkaloids in locally used herb *Gentiana olivieri* has proved to be a potent naturally occurring medicine. Clinical study of this medicinal herb was conducted to evaluate its antihypertensive effect and to ascertain its safety and efficacy in human subject. Effective hypotension was observed in all the cases, with nil adverse effects.

Key words: *Gentiana olivieri,* hypotensive, clinical trial, adverse effect

ANSInet
Asian Network for Scientific Information

Department of Biotechnology and Informatics, BUITMS, Pakistan
[1]Department of Botany, University of Balochistan, Pakistan
[2]Department of Physiology, Bolan Medical College, Quetta, Pakistan
[3]Department of Chemistry, University of Balochistan, Quetta, Pakistan

INTRODUCTION

Gentiana species have long been used in traditional folk medicine[1]. *Gentiana olivieri* is srill recommended by Hakeems (herbal medicine physicians) and is used by a number of patients, of Quetta city and other areas of Balochistan for different diseases, including hypertension. The medicinal use of *Gentiana olivieri* has now been proved experimentally and scientifically and has been reported in our series of papers, describing the hypotensive effect[2], antibacterial and antifungal properties[3], non-cytotoxic effect[4] and non-toxic effect on rats[5].

To utilize the effective pharmacological action of this plant, it should be developed into an efficacious drug. The development of a new drug is not a quick and easy process. Initially identifying, isolating, determining its pharmacological action and then ascertaining that it's both safe and efficacious in man. All drug regulatory agencies demand that any drug that is to reach the market should be subjected to rigorous evaluation to determine it's safety and efficacy[6]. Therefore testing drugs in patients is must to find out its therapeutic and adverse effects, before marketing, so as to identify all of the potential problems.

Since, no fatal results were observed in our chronic toxicity assay on rats and LD_{50} (lethal concentration causing death for 50% population) was found to be greater than 1000, therefore present study was attempted to observe its efficacy in human beings. The objective of this study was to highlight and develop the natural and locally used plant *G. olivieri* as a drug for the antihypertensive effect in patients suffering with essential hypertension.

MATERIALS AND METHODS

The present study was carried out on fifty patients, men and women ranging between 30-70 years of age, who visited the pansars (medicinal herbs) store to purchase the herbal medicine and advice from the Hakeem present there. All the patients suffering from hypertension were examined thoroughly and those suffering from secondary hypertension were excluded from the study on the basis of clinical history, physical examination and appropriate investigation as and when the situation demanded. This carefully controlled clinical trial included exclusion criteria, so that drug may not be administered to elderly patients (above 70), neonates, pregnant women, or those with impaired renal, hepatic or cardiovascular functions[7]. Fifty cases of essential hypertension in which no obvious cause of hypertension could be found were included in the study. The patients who were diabetic or those taking any drugs which could affect the blood pressure (B.P.) like diuretics, oral contraceptives etc. were excluded from the study. In every patient B.P. was recorded either after a rest for an hour at least on three different occasions, or/and after over night sleep. The patients were followed up at 1, 2 and 4 weeks interval. They were assessed clinically for improvement in their symptoms and signs[8].

Components of drug: Whole plant of *G. olivieri* was washed, dried and grinded in the powder form.

Drug dosage and schedule: Five grams of this crude form of herbal medicine was filled in capsules and was taken with water once a day. The drug was given for 4 weeks. The patients were also advised to restrict the salt intake, or take less than 4 g day^{-1}.

RESULTS AND DISCUSSION

The patients including men and women were grouped according to their ages (Table 1). Maximum number of patients suffering with hypertension appears to be in group 2 and 3, ranging from 41 to 60 years of age. Lesser number of the elderly group of patients might be due to the transport and other problems faced by them (Table 1).

Number of male patients is more than thrice as that of females. This might be due to the fact that women usually ignore minor complaints and avoid going to health centers, unless there is some serious problem (Table 2).

During regular clinical examination and other subject observations, no abnormal signs or other irregularities were reported or detected. However, some patients complained of more frequent urination, which may be due to the diuretic effect of the drug as observed earlier[5]. Results observed were expressed as mean values, with standard error of mean of systolic and diastolic blood pressures, before and after the treatment (Table 3).

The above observations show that the drug seems to be antihypertensive and supports our previous findings in rats[2]. Similar results have been described by most Unani physicians. The hypotensive effect appears to be gradual and progressive, producing no adverse or harmful effect. However, slight decrease in the heart rates of some patients was also observed. The diuretic activities of the drug as observed in a number of patients, also contributes to the hypotensive effect.

The above findings indicated that *G. olivieri* is efficacious and safe to be developed as a drug. However, further clinical trials in few thousands patients is recommended so as to observe the effect at different multiple doses. Moreover, studies for potential

Table 1: Age group of the patients using *G. olivieri* as herbal medicine

Age groups	No. of patients	Percentage
31-40	4	8
41-50	20	40
51-60	19	38
61-70	7	14
Total	50	100

Table 2: Sex of patients using *G. olivieri* as herbal medicine

Sex	No. of patients	Percentage
Male	38	76
Female	12	24
Total	50	100

Table 3: Mean±SEM of blood pressure level of patients using *G. olivieri*

Before treatment	After treatment			
B.P. Level	0 day	1 week	2 week	4 week
Systolic pressure	174±12	150±8	143±12	135±10
Diastolic pressure	102±5	92±6	90±3	84±4

SEM: Standard error of mean

teratogenicity and effects on fertility and reproduction are required[9].

Previously, biological and pharmacological experiments with the pure alkaloid gentianine and crude form of *G. olivieri,* have shown almost similar activities, due to the greater percentage of this alkaloid present in the plant[2-4]. Therefore, the hypotensive activity shown in this trial must be due to the similar activities of gentianine and its plant *G. olivieri*. This indicates that the pure alkaloid gentianine is safe, produces antihypertensive effect and could be developed as an antihypertensive drug.

REFERENCES

1. Perry, L.M., 1980. Medicinal plants of South East Asia. 157, MI Press. London.
2. Mansoor, A., A. Samad, M.I. Zaidi and K. Aftab, 1998. Hypotensive effect of *G. olivieri* and its alkaloid gentianine in rats. Pharm. Pharmacol Commun., 4: 229-230.
3. Mansoor, A., M.I. Zaidi and M.A.K. Malghani, 1999. Biological efficacy of the extracts and pure compounds of *G. olivieri*. Pak. J. Biol. Sci., 2: 192-193.
4. Mansoor, A., M.I. Zaidi and M.A.K. Malghani, 2000. Isolation of bioactive alkaloids from *G. olivieri* and its non-toxic effect. Pak. J. Bot., 32: 105-109.
5 Mansoor, A., 2003. Toxicological evaluation of the extracts and pure compounds of *G. olivieri.* Pak. J. Biol. Sci., 6: 1949-1950.
6. Rogers, H.J. and R.G. Spector, 1986. Hand Book of Clinical Drug Research. Blackwell Scientific Publication, London.
7. Neitch, G.B.A. and J.C.C. Talbot, 1985. The pharmacist and adverse drug reaction reporting. Pharmaceu. J., 234: 107-109.
8. Alam, M.M., S.M. Ashraf and M.H. Hakim, 1992. Antihypertensive effect of Safoof Khashkhash and Sharbat Bazoori Moatadil in Essential Hypertension. A Clinical Study. Hamdard, 37: 130-134.
9. International Drug Surveillance Department, 1991. Glaxo Group of Research Ltd. Greenford, Middlesex, UK. Drug Safety. A Shared Responsibility. Churchill, Livingstone.