

Role of an Indigenous drug Geriforte on Blood Levels of Biogenic Amines and its Significance in the Treatment of Anxiety Neurosis

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ABSTRACT

In the recent past, several herbal drugs have proved their efficacy in decreasing anxiety and tension. Until recently, limited scientific study has been done to prove the clinical importance of these herbal drugs. Geriforte is an indigenous compound commonly advocated for arresting the ageing process. This remedy has also been found beneficial in reducing anxiety and stress – 34 diagnosed cases of anxiety neurosis and 24 apparently normal individuals were selected for the present study. After 12 weeks of drug therapy a significant reduction in 5-HT levels was observed. Circulating MAO and GABA showed an increasing trend along with decreased glutamic acid levels after treatment, in the neurotic anxiety cases. Psychological complaints considerably decreased after 12 weeks of therapy. Since Geriforte regulates the altered circulating biogenic amines, this remedy can be advocated as an adjunctive therapy in the management of stress disorders.

Biogenic amines are known to be altered during emotional stress (Kopin 1980, Brown 1974, Thierry 1973, Subrahmanyema 1975, Anisman 1985). Hamburg (1975) pointed out that stressful stimuli may cause significant alterations in the brain biogenic amines levels. Insomnia, irritability, heightened sexuality and aggressiveness are associated with the 5-HT content in the brain (Liptan, 1973).

Numerous psychotropic drugs with interesting properties of decreasing anxiety and stress have been administered as therapeutic agents in man. Tranquillizers and antidepressant drugs influence the circulating and brain biogenic amines. Continuous use of these drugs may cause cortical synchronization, relaxation of skeletal muscles and drowsiness (Goldman, 1962, Randall, 1962). In recent years, considerable emphasis has been laid on the scientific evaluation of herbomineral drugs, which may prove beneficial in reducing anxiety and tension.

Geriforte, one of the known indigenous formulations of The Himalaya Drug Co., India, induces cellular regeneration (Lobo 1975), increases hormonal utilization (Kishore 1983) and regulates enzymes and bioamine metabolism (Bardhan 1985, Upadhyaya 1988). The clinical significance of this remedy has already been reported in the management of anxiety and psychosomatic disorders (Singh 1978, Dubey 1984).

Each Geriforte tablet contains Chyavanprash concentrate (100 mg) and the extracts of *Asparagus adscendens* (10 mg), *Withania somnifera* (30 mg), *Glycyrrhiza glabra* (20 mg), *Centella asiatica* (20 mg), *Mucuna pruriens* (10 mg), *Shilajeet* (20 mg), *Asparagus racemosus* (20 mg), *Terminalia arjuna* (6.4 mg), *Makardhwaj* (10 mg) and *Piper longum* (10 mg), besides some others.

MATERIALS AND METHODS

Thirty four diagnosed cases of anxiety neurosis and 24 apparently normal individuals were selected for this clinical trial, of this 18 were on placebo. A comprehensive proforma was prepared to observe the clinical symptomatology. The cases were diagnosed as anxiety neurosis following the methodology developed by Feighner *et al* (1972). Information regarding life events in the patients was recorded in healthy subjects. It was obtained with an open-ended interview using the presumptive stressful life scale (PSE scale – Singh 1981); a comprehensive health examination was carried out and those subjects having any evidence of major or minor illness were excluded.

Before introducing Geriforte, plasma levels of 5-HT (Snyder 1965), MAO activity (Pervage 1973) and GABA and glutamate (Saito and Tokunaga 1967) were determined. Geriforte or placebo was given in the dose of two tablets three times a day for 12 weeks. The initial results were compared with the results obtained after 12 weeks of follow-up.

RESULTS

Considerable improvement in specific clinical features of anxiety neurosis was recorded after 12 weeks of Geriforte therapy. In the treated group 81% exhibited improvement in their clinical symptomatology. Also the normal group physical and mental health status improved in 7% of subjects. In the placebo group no change was observed.

A marked reduction in anxiety score was noticed in both the clinical groups following 12 weeks of Geriforte therapy (Table 1). 5-HT showed a significant decreasing trend both in the normal subjects as well as in anxiety neurosis cases treated with Geriforte (Table 2), the placebo groups did not exhibit any change. Plasma MAO was found to be low in anxiety neurosis; after 12 weeks of Geriforte therapy a marked increase was observed ($P < 0.05$). In the placebo group no change could be noticed. GABA was significantly lower in the anxiety neurosis cases, but after 12 weeks of drug treatment a considerable increase in GABA level was noticed. Glutamate decreased after Geriforte therapy in the normal as well as the disease groups (Table 3).

Clinical groups	Sample size	Anxiety score (%)		Comparison (Initial vs 12 weeks)	Improvement in psychological complaints (%)		Comparison (Initial vs 12 weeks)
		Initial	12 weeks		Initial	12 weeks	
<i>Normal</i>							
Placebo	8	49.5 ± 5.3	50.8 ± 5.0	$p > 0.05$	56.7 ± 14.3	55.2 ± 12.7	$p > 0.05$
Geriforte	16	50.7 ± 6.3	47.3 ± 5.2	$p < 0.05$	57.3 ± 12.5	45.7 ± 14.3	$p > 0.05$
<i>Anxiety Neurosis</i>							
Placebo	10	58.7 ± 4.3	57.7 ± 5.7	$p < 0.05$	98.3 ± 19.3	90.7 ± 16.3	$p > 0.05$
Geriforte	24	59.8 ± 5.1	53.9 ± 6.7	$p < 0.01$	94.9 ± 18.3	77.3 ± 15.5	$p < 0.001$

Clinical groups	Sample size	Serotonin (µg/ml)		Comparison (Initial vs 12 weeks)	MAO (n mol/ml/hrs)		Comparison (Initial vs 12 weeks)
		Initial	12 weeks		Initial	12 weeks	
<i>Normal</i>							
Placebo	8	0.14 ± 0.08	0.15 ± 0.04	$p > 0.05$	3.32 ± 0.82	3.50 ± 0.98	$p > 0.05$
Geriforte	16	0.17 ± 0.05	0.08 ± 0.01	$p < 0.05$	2.93 ± 0.13	1.65 ± 0.34	$p < 0.01$
<i>Anxiety Neurosis</i>							
Placebo	10	0.47 ± 0.12	0.45 ± 0.05	$p < 0.05$	1.97 ± 0.87	1.28 ± 0.74	$p > 0.05$
Geriforte	24	0.57 ± 0.04	0.19 ± 0.03	$p < 0.01$	1.95 ± 0.62	3.01 ± 1.58	$p < 0.05$

Clinical groups	Sample size	GABA (µ mol/ml)		Comparison (Initial vs 12 weeks)	Glutamate (µ mol/ml)		Comparison (Initial vs 12 weeks)
		Initial	12 weeks		Initial	12 weeks	
<i>Normal</i>							
Placebo	8	0.74 ± 0.09	0.80 ± 0.09	$p > 0.05$	0.54 ± 0.14	0.57 ± 0.14	$p > 0.05$
Geriforte	16	0.82 ± 0.09	0.95 ± 0.09	$p < 0.05$	0.72 ± 0.11	0.50 ± 0.09	$p < 0.01$
<i>Anxiety Neurosis</i>							
Placebo	10	0.17 ± 0.04	0.18 ± 0.04	$p < 0.05$	1.72 ± 0.42	1.84 ± 0.42	$p < 0.05$
Geriforte	24	0.21 ± 0.05	0.63 ± 0.06	$p < 0.001$	1.59 ± 0.03	0.73 ± 0.48	$p < 0.001$

DISCUSSION

A large number of herbal drugs with antistress property have appeared on the scene in recent years. There is an urgent need for realistic appraisal of such drugs. It is the consensus of a majority of workers that the herbomineral compound Geriforte has a significant antistress and adaptogenic property (Subrahmanyema 1975, Anisman 1985). Geriforte has been used successfully in the treatment of related conditions such as tension, headache, premenstrual tension and menopausal complaints (Makhani 1981, Chandra 1981, Gupta 1981). Furthermore, this herbomineral compound is prescribed as adjunctive therapy in many clinical conditions in which anxiety is either a causative or accompanying factor.

More recently, antiviral activity has also been observed with Geriforte against Liv. Vateinea virus in guinea pigs. It is also noticed that Geriforte stimulates the immune system, which inhibits further growth of the virus (Singh 1981).

In the present study an attempt has been made to evaluate the antistress property of Geriforte by observing its influence on circulating biogenic amines levels. Considerable improvement was reported in psychological complaints observed among anxiety neurosis cases. 5-HT and its degrading enzyme MAO showed significant alteration under the influence of this remedy. In an earlier report, Dubey *et al* (1980) also reported significant reductions in acetylcholine, catecholamine and plasma cortisol in psychosomatic disorders. It seems that some of the components of Geriforte have profound influence on biogenic amines. In the present study it is observed that hyperexcitable, nervous, neurotic individuals had decreased GABA in comparison with the normal ones. The present observation is in conformity with the observation of Baxter (1970).

The inverse trend of 5-HT and MAO under the influence of Geriforte indicates its significant influence on the metabolism of 5-HT. The increased level of MAO after 12 weeks of therapy further indicates that some of the components of Geriforte exert a significant influence on MAO synthesis.

On the other hand GABA showed a decreasing trend in neurotic individuals but after drug treatment, a significant elevation was recorded. It may be possible that this remedy potentiates the effect of GABA by increasing the GAD (Glutamic acid dehydrogenase) activity or by reducing the GABA-T (Gamma aminobutyric acid – transaminase) activity in these patients. It has already been reported that Geriforte has a profound influence on enzyme activity both in the blood as well as in the brain (Bardhan 1985).

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