

Executive Fatigue and its Management with ‘Mentat’

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ABSTRACT

Research has proved that a relationship exists between a stressful life and development of fatigue. A clinical trial was conducted with “Mentat”, an Ayurvedic herbal remedy marketed by The Himalaya Drug Co., in order to examine its effect on mental fatigue in executives.

Forty two cases from executive, technical, teaching and managerial cadres with complaints of fatigue and exhaustion were selected for a placebo-controlled study. After careful clinical history, fatigue time and task errors were measured by an electronic device. Occipito-frontalis myography and alpha EEG pattern were also recorded. The drug/placebo was administered in the specific dosage for three months. The neuropsychological assessment was repeated every month for three months.

The results revealed a significant reduction in the duration of fatigue and muscle action potential in the drug-treated group. The alpha wave frequency, in this group, significantly increased which is indicative of a relaxed state of mind.

Key words: Fatigue, Mentat, Stress, EMG, EEG.

The relationship between a stressful life and fatigues is well known. Studies of patient population indicate that the patients experiencing stressful life events are more likely to have early fatigue, exhaustion and a number of other depressive illnesses. Executive work-load and anxiety are chronic stressors responsible for the causation of depressive symptomatology. Attention to a specific sensory input has been observed to reduce the sensory threshold by an action on the cerebral cortex. A constant psychological strain plays an important role in the occurrence of early mental fatigue (Deutsch & Deutsch, 1963; Slater & Roth, 1986).

Dysponesis is also one of the important causes of early fatigue. It is basically a reversible physiopathological state characterised by errors in energy expenditure in the presence of anxiety and tension that interfere with nervous system functioning and thus with control of organ function. Among the numerous clinical manifestations of dysponesis are fatigue, exhaustion, headache, anxiety, depression and insomnia (Whatmore & Kohli, 1979).

A person commits more errors following fatigue and it has been observed that constant stress produces several neuro-chemical changes which ultimately result in early fatigue (Blum & Naylore, 1984).

Since mental fatigue severely effects mental performance there is need to treat such subjects with suitable medication. Mentat, an Ayurvedic herbal remedy, generally advocated to improve memory and attention span, has shown significant beneficial effects in combating early mental fatigue. The present study is an attempt to examine the effect of “Mentat” on mental fatigue in selected cases.

MATERIAL AND METHODS

The study group included 42 selected cases from the executive, teaching and managerial cadres with complaints of early fatigability. Twenty-six of these received “Mentat”, in the dose of 2 tablets twice a day for three months and the rest received the same dose of placebo for the same duration.

After a careful clinical history, fatigue time and task errors were measured by an electronic device. The task was completed in a definite period of time and the total number of errors was recorded. The time elapsing between the commencement of the task and committing the first two mistakes was used as the time to feel fatigued.

Both the Mentat-treated and the control groups were then given some arithmetic problems to be solved by using a number of digits on the electronic device and the time of onset of errors was recorded. The subjects were then asked to continue with the task and the total number of mistakes was recorded at the end of five minutes.

The occipito-frontalis myography and occipital alpha wave frequency on EEG were recorded with the subjects sitting in a relaxed and comfortable position.

The neuropsychological assessments were repeated after every month for three months. The final readings were compared with the initial ones.

RESULTS

In the Mentat-treated group the time of onset of fatigue was significantly prolonged and the number of task errors reduced in both the sexes. However, the females became fatigued earlier and also committed more errors than the males (Table 1). Electromyographic study of the occipito-frontalis exhibited significant reduction in muscle action potential after three months of therapy with “Mentat”. The alpha wave frequency also showed marked increase after this period. These observations indicate a delayed onset of fatigue and a relaxed state of mind respectively (Table 2).

Table 1: Effect of Mentat on fatigue time and task errors

Treatment	Groups	Sample size	Onset of fatigue (in minutes)		Task errors following fatigue	
			Initial	12 weeks	Initial	12 weeks
Placebo	Male	10	30.50 ± 6.85	29.92 ± 6.27	12.53 ± 3.97	13.60 ± 4.85
	Female	6	20.71 ± 5.92	21.07 ± 4.85	16.83 ± 4.92	18.22 ± 5.72
Mentat	Male	16	26.43 ± 4.85	37.72 ± 6.85 ^a	14.86 ± 4.72	9.72 ± 3.18 ^b
	Female	10	17.84 ± 5.92	26.93 ± 7.85 ^c	18.73 ± 5.22	12.40 ± 4.89 ^d

a & b $p < 0.005$; c & d $p < 0.01$ as compared to corresponding placebo and basal readings.

Table 2: Changes in muscle action potential and alpha wave frequency following Mentat therapy

Treatment	Groups	Sample size	EMG (μ volts/sec)		Alpha frequency (Hz)	
			Initial	12 weeks	Initial	12 weeks
Placebo	Male	10	58.41 ± 6.82	62.74 ± 7.92	10.24 ± 3.72	9.92 ± 2.21
	Female	6	70.83 ± 8.42	73.85 ± 9.32	8.45 ± 3.12	9.23 ± 2.85
Mentat	Male	16	64.22 ± 9.85	40.83 ± 10.92	11.42 ± 2.85	13.83 ± 3.17
	Female	10	78.40 ± 14.82	54.70 ± 7.82	9.84 ± 2.85	14.07 ± 3.82

* $p < 0.01$ as compared to placebo and basal readings.

DISCUSSION

Stressful life and depression are intimately related to each other. Stress and strain significantly influence mental performance leading to depression and fatigue. Patients working in a stressful

atmosphere are most likely to experience early fatigue and a number of depressive illnesses, such as circulatory, digestive, genitourinary and endocrine problems. Constant stress for a prolonged duration has its effect on early fatiguability and deficits in motor activity (Tamar, 1982). Persons with poor mental ability generally suffer from fatigue and depression (Regan, 1982). Till now no suitable drug therapy was available to prevent stress-induced early fatiguability and depression.

Mentat, an Ayurvedic herbal formulation, has shown a significant influence on intelligence and memory quotient in different age groups (Agrawal *et al.*, 1990 a, b). It is quite clear from our results that “Mentat” significantly delayed the onset of fatigue and reduced the number of errors among individuals who are prone to mental fatigue. A marked relaxation of the occipito-frontalis muscle was noticed after three months of therapy with “Mentat”, thus indicating less tension. Considerable increase in occipital alpha wave frequency was noticed after three months of therapy with “Mentat” indicating a relaxed state of mind. The continuous oral administration of “Mentat” for three months has not shown any neurological, psychiatric or endocrinal side-effects.

In conclusion, “Mentat” appears to be a very useful herbal preparation capable of alleviating early fatigue and exhaustion in individuals exposed to a stressful environment.

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