

PREEMPTIVE PROPHYLAXIS OF MIGRAINE DEVICE AND METHOD

CROSS REFERENCE

This application claims priority of prior Provisional Application Ser. No. 60/064,879, filed Nov. 6, 1997.

BACKGROUND OF THE INVENTION

The present invention relates generally to the health field and more particularly to a device and method for predicting the onset of a migraine headache.

A headache may be one of several different varieties, each of which has its own unique pain characteristics which differ dramatically. The types of headache include tension, sinus, cluster, rebound and migraine. Migraine is a particularly painful headache that recurs from time to time. The pain is quite severe and often the person with migraine must stay in bed. Dietary, emotional and environmental factors may trigger an attack. On average, migraine sufferers experience an attack a month. Attacks last from four to seventy-two hours. Migraine sufferers sometimes get a warning signal before an attack. Some experience "aura," a disruption of brain function that occurs twenty to thirty minutes before the attack. This is characterized by visual disturbances like flashing lights and blurred vision. Other common symptoms include numbness or a tingling feeling around the lips or hands, hallucinations and loss of speech. Other migraine sufferers get a "prodrome," which occurs several hours or even a day before an attack. The symptoms may include yawning, fatigue, mood changes, food cravings, and sensitivity to light, sound, touch, or odors. Of interest is that the incidence of migraine appears to be on the rise. Because of the severity and incidence of migraine, prescription medicines have been invented to provide relief. One is sumatriptan succinate sold under the trademark IMITREX by Glaxo Wellcome Inc. and covered by U.S. Pat. Nos. 4,816,470 and 5,037,845. A leaflet included with IMITREX instructs the migraine sufferer to take a tablet as soon as the symptoms of migraine appear. It is desirable to be able predict the onset of migraine before the head pain actually occurs and thereby permit the prophylactic administration of medicine.

The Automated Neuropsychological Assessment Metrics (ANAM) is a set of standardized batteries of cognitive tests, modified by neuropsychologists in the U.S. Armed Forces for precise measurement of cognitive processing efficiency of military personnel. The tests assess sustained concentration and attention, mental flexibility, spatial processing, cognitive processing efficiency, mood, arousal/fatigue level, and short-term, long-term and working memory. The ANAM is now in the public domain. The most recent version is ANAM V3.11 a/96 which includes the following battery of tests:

1. Subject Demographics Form
2. Stanford Sleepiness or Sleep/Fatigue Scale
3. Mood Scale 2
4. Simple and Two-Choice Reaction Time
5. Sternberg Memory Search Tasks
6. Running Memory Continuous Performance Task
7. Mathematical Processing Task
8. Digit Set Comparison Task
9. Logical Reasoning-Symbolic
10. Tower of Hanoi (Tower Puzzle)
11. Stroop Color/Word Interference
12. Code Substitution (Letter/Symbol Comparison)

13. Code Substitution (Immediate and Delayed Recall)
14. Spatial Processing Task (Simultaneous)
15. Matching to Sample
16. Tapping (Left and Right Index Finger)
17. Modified Orientation and Amnesia Test

It would be desirable to be able to use a subset of these tests to predict the onset of migraine.

The present invention is directed to meeting one or more of the above-stated desirable objectives.

SUMMARY OF THE INVENTION

In accordance with one aspect of the invention there is provided a preemptive prophylaxis migraine method using the following cognitive tests: Simple Reaction Time; Running Memory Continuous Performance Task; Matching to Sample; Mathematical Processing Task; and interpreting the results as a percent of baseline indicator of need for prophylaxis. Preferably the tests are administered in the listed sequence. Advantageously the tests are preceded by the Stanford Sleepiness Scale and Mood Scale 2 tests.

In accordance with another aspect of the invention there is provided a special purpose microprocessor by which the above tests may be taken by a migraineur. Preferably the device includes two mouse buttons and records performance on the tests. Advantageously the device is a handheld computer with a fold down screen or a palm-top type computer.

In a preferred arrangement there is provided a preemptive prophylaxis migraine device including a microprocessor having a memory, a battery of tests loaded into the memory of the microprocessor and including a Simple Reaction Time, a Running Memory Continuous Performance Task, a Matching to Sample, and a Mathematical Processing Task; means for computing the score on a trial of these tests to establish a baseline and for storing the baseline in the memory; the means for computing being operative for computing the score of a subsequent trial of the tests and comparing the same to the stored baseline; and means for indicating a cognitive change.

Other aspects and advantages may be perceived from the following description.

BRIEF DESCRIPTION OF THE DRAWINGS

The accompanying drawings illustrate two devices and one method for carrying out the present invention and wherein:

FIG. 1 is a plan view of a hand-held computer which is one embodiment of the invention;

FIG. 1A is a plan view of a palm-top type computer which is another embodiment of the invention; and

FIG. 2 is a flow chart illustrating the steps and sequence of a method for performing preemptive prophylaxis of migraine.

DETAILED DESCRIPTION

FIG. 1 shows a preemptive prophylaxis of migraine device in the form of a hand-held computer, generally designated **10**, and having a key pad **12** and a screen **14** which advantageously is at least four inches (10.16 cm.) square. A hinge **15** is provided so the screen **14** may be conveniently folded down upon the key pad **12** for storage or transporting. When open the computer **10** is conveniently about 5"x9" (12.7 cm. by 22.86 cm.) in size. The key pad **12** has a built-in set of two mouse buttons **16,18**, a start/stop or