BRAIN FINGERPRINTING - A POWERFUL TOOL IN THE WRONG HANDS

*** Dr. Manju Prakash**

Abstract:

Brain finger printing is a good tool for the defense counsel to (disconnect) dissociate the innocent from crime. But in India, the prosecution is using it to (connect) associate a suspect with crime. Therefore a genuine debate or discussion is needed before it is accepted as scientific evidence by the court of Law. This is basically Misapplication Through Misunderstanding of the Technology. A sincere effort has been made to initiate a healthy and useful debate or discussion among the professionals who are supposed to use in the course of discharge of their solemn duty.

Introduction:

Rapid advances in the field of diagnostic medicine over the past decade have revolutionized diagnostic imaging, diagnosis and treatment of diseases. Neuroscience is no exception. With the introduction of computers, microchips and gadgets, giant steps have been taken in this specialized field. Thus, scientists are gaining a new understanding of brain function and structure, and uncovering exciting and challenging insights into the nature of human behavior[1].

Advances in magnetic resonance imaging (MRI), electroencephalography (EEG), and other modern techniques, can, for the first time, reliably measure changes in brain activity associated with thoughts, feelings and behaviors, in principle allowing researchers to link brain activity patterns directly to the cognitive or affective processes or states they produce.

* Associate Professor, Forensic Medicine.
PESIMSR, KUPPAM. A.P.,

Brain is the processing unit comparable to CPU of a computer with a very large hard disk capacity which can store vast quantities of information. The sensory organs are input devices which record the events in the brain. Motor functions are output device which are comparable to output devices like a monitor or printer. Many a times the human brain fails to recall things that are stored in the brain – forgetfulness; this is inspite of the data stored in brain. The defect lies in the recalling process and not in the brain (storage – hard disk). In such condition a newly developed technique called Brain fingerprinting can be used effectively to retrieve the stored data successfully.

In every criminal act, the brain is always active, helping in scheming, planning and coordinating during the execution of a crime. Participation of the brain in the criminal activity is the basis for usage of Brain finger printing in resolving criminal matters. During interrogation of a suspect or accused, his memory may fail, i.e., he may not be able to recall, it doesn't mean the suspect is lying or concealing the truth with an intention. It may be a genuine failure to recall the events. Such failure doesn't occur in brain finger printing[2].

Brain Fingerprinting is based on the principle that the brain is central to all human acts. In a criminal act, there may not be many physical evidences at the crime scene, but the 'brain' is always there recording the sequences of the crime. The basic difference between a criminal and innocent person is that the criminal has the details of the crime stored in his brain, whereas the innocent does not. The test does not determine what someone is thinking or even

whether they are lying or not. It does, however, determine if a person recognizes specific things. The test does not plant any ideas or images into the subject's mind[2].

Background: Brain fingerprinting:

Brain Fingerprinting testing is a scientific technique to determine whether or not specific information is stored in an individual's brain. Here the tests are conducted by eliciting specific response from the suspect's brain. When details about a crime, training or other types of specific knowledge, mixed in a sequence or otherwise is presented, the brain responds by eliciting brain waves when any image or sound is familiar. This is done by measuring brain-wave responses. The subject/suspect undergoing the test does not have to talk or respond physically. The presence of the p300 wave or MERMER (memory and encoding related multifaceted electroencephalographic responses) in an EEG shows that the specific knowledge is stored in the suspect's brain. If the suspect recognizes the details of the crime, this indicates that he has a record of the crime stored in his brain. Investigators use the details that the person being tested would have encountered in the course of committing a crime, which an innocent person would have no way of knowing. Thereby the innocents can be easily indentified[3].

The Name:

The name Brain finger printing suggests that it is a tool for identification, similar to DNA finger printing. It appears as if the contents of the brain are gathered to establish the identity of an individual. But in fact only the brain waves are mapped or traced. It is also painfully close to "brain washing." Some people like to call it "Threat Recognition Testing" when used to identify the terrorists ,or "Evidence Recognition Testing" when used to investigate crime. But the most appropriate I feel, would be “Brain Wave Mapping”.

Claims by the users:

Brain Fingerprinting testing is based on well-established science. The users or promoters of brain fingerprinting claim that it is accurate, scientific, thoroughly tested, peer reviewed and proven[5].

1. If properly and scientifically used ,it is 100% accurate.
2. The suspect is not drugged as in the case of Narcoanalysis.
3. This technique is very safe and does not require the co operation of the suspect to a large extent.
4. The test is excellent at clearing the innocent and,when properly administered, can determine, if not always guilt, then at least what knowledge a subject possesses, allowing for further investigation.
5. The testing is computerized, could require no human intervention, and is not racially, ethnically, or culturally biased.
6. Testing could take as little as 10 minutes, but could be expanded to cover more items, thus adding the detail necessary to separate security risks from non-risks.

Counter claims/ Lacunae or short comings:

1. Brain finger printing is a relatively new technique requiring discussion in different platforms by experts/peers.
2. It tells us whether specific information is stored in the suspect's brain or not. It does not tell us when and how the information got stored.
3. It is purely dependent on the investigator's skill and judgment. The investigator must independently gather the information regarding the crime and crime scene and pick up images and information which have not been picked up by the police or prosecution. It may appear trivial but the perpetrator of crime must have this piece of information in his memory.

4. If the suspect's memory isn't functioning [because] if he or she was stoned while committing the crime, the suspect will certainly not remember it the next day, let alone years later, in such cases brain fingerprinting is not the right tool to adopt.

5. It cannot be used as a screening tool. It is not possible to subject all the suspects to brain finger printing. In such case it may turn out as Orwellian crime fighting tool. (Orwell's 1984 described a society in which innocent people were constantly in fear of an extremely controlling government that did not value the truth.)

6. It may impede on the privacy of the suspect and may amount to human rights violation.

7. Brain Fingerprinting testing does not prove guilt or innocence. It only tells whether the suspect is familiar with crime scene, crime weapon and victim. This familiarity in no way goes on to prove that suspect is guilty.

8. The test does not determine what someone is thinking or even whether that person is lying or not. It does, however, determine if a person recognizes specific things.

9. The admissibility in the court of law is still a matter of discussion.

10. In a case where there are two people at a crime scene and only one of them committed the crime, brain finger printing cannot be used to identify the real culprit and also to determine why the innocent person was at the crime scene.

11. Proponents of the theory of false memory syndrome suggest that it is possible for a person to create false memories, often as the result of other stresses in their life, such as, anger or peer pressure. A false memory is a memory of an event that did not actually occur or is a distort of an actual experience which can be caused by repeatedly thinking about and visualizing such event or experience.

Scenario in India:

At present this excellent forensic tool is being used extensively by the prosecution, too much hype has been created around the brain fingerprinting test without even bothering to take suggestions from the body of experts in the fields. Little is known about brain finger printing among the forensic experts in India and even little is discussed in different forums. The theory of proof beyond reasonable doubt before convicting a person accused of a crime takes a beating due to abuse of understudied and improperly administered brain finger printing test.

As far as admissibility of this scientific evidence is concerned there is no clear picture among the protectors of Law. Indian Judiciary accepts Medical Experts evidence as only a suggestion of Opinion of a Doctor[1]. As such individual judges are capable of corroborating the scientific/ expert evidence with circumstantial evidence and decide whether to accept or refuse to accept the expert evidence. Judges can deal with complex scientific matters only after they have been acquainted with the basic scientific or technical knowledge. The knowledge gained by repeated exposure to scientific matters will equip the trial judge to effectively discharge his "gatekeeping" role envisaged for the Judge to ensure that an expert's testimony is both reliable and relevant1.

There are no set rules (unlike in the USA where they have Doubert's Guideline) to determine, whether a particular scientific technique/forensic tool is admissible or not per se. It is therefore a matter to be considered after thorough discussion among the peer group.

Constitution of India - Article 20. (1) No person shall be convicted of any offence except for violation of a law in force at the time of the commission of the Act charged as an offence, nor be subjected to a penalty greater than that which might have been inflicted under the law in force

at the time of the commission of the offence.

(2) No person shall be prosecuted and punished for the same offence more than once.

(3) No person accused of any offence shall be compelled to be a witness against himself.

No person accused of any offence shall be compelled to be a witness against himself as per the protection granted by Article 20(3) of the Constitution. Therefore, a suspect of the crime cannot be compelled to disclose facts, which he can recall from his memory, likely to implicate him in a crime in which he was involved. A person accused of an offence, therefore, cannot be compelled to subject himself to EEG test for finding out whether the information relating to the offence is stored in his brain[4].

The trial court also cannot compel the suspect/accused to undergo the test. Now the pertinent question is the accused are regularly made to undergo these tests by the prosecution. Later stages this whole exercise may become futile and a waste of time and money. Anything short of obtaining informed consent of the accused might raise a constitutional issue of violation of the fundamental rights guaranteed by Article 20(3) of the Constitution.

On the determination of admissibility of scientific evidence, these questions need to be satisfied:

(i) whether a theory or technique can be or has been tested so that it is fool proof or 100% accurate.

(ii) whether it has been subjected to peer review and publication;

(iii) whether a technique has a high known or potential rate of error and whether there are standards controlling its operation;

(iv) whether the theory or technique enjoys general acceptance within a relevant scientific community.

(v) whether the witness is indeed expert in the field;

(vi) whether the field is a genuine area of science;

(vii) Whether, given a positive answer to (v) and (vi), his particular depositions are credible.

(viii) There would also be question of credentials of the expert witnesses.

The above list is neither definite nor exhaustive. Depending on the nature of issues/matter before the court, the presiding officer should satisfy himself about pertinence of the test and expert's expertise on the subject. An expert witness is not a witness of fact. His evidence is really of an advisory character. His task is to provide necessary scientific criteria to the presiding officer (judge) for testing the accuracy of the conclusions.

Brain finger printing is great forensic tool which primarily helps in dissociating an innocent person from the crime rather than associating a person with the crime. This important point is totally disregarded in India. The prosecution is busy subjecting suspects in all high profile cases without any application of mind. The people who administer this test, rely solely on the images and information passed on by the police without bothering to independently acquire the information by visiting the scene of crime. I reiterate that this is a fantastic tool for the defense counsel to use to get acquittal for his innocent suspects.

Three Phases of Brain Fingerprinting[5]

1. Brain fingerprint Crime Scene Evidence Collection.

2. Brain Fingerprinting Brain evidence collection

3. Brain Fingerprinting Computer Evidence Analysis

Conclusion:

1. The faulty analysis and presentation of scientific evidence would deprive the innocent of intellectual due process from judges and

undercut the proper functioning and credibility of the judicial system. An innocent convicted on the basis of such scientific evidences is mockery of our criminal justice system. Just as any other evidence requires application of mind and appreciation, the scientific evidence, if intelligibly put forth by the expert, should not pose any problem for the courts to decide the question of admissibility and evaluation of such evidence. If the scientific expert is able to intelligibly articulate the nature of evidence, there is no reason why the court should not be able to understand and appreciate it. The task of the Court is to industriously understand the scientific evidence and assess its value, without being affected by commercial publicity and hype surrounding the scientific inventions.

2. More and more centers for conducting brain finger printing should be established by private entrepreneurs with well qualified personnel so that innocent suspects are protected. Defense counsels should opt for brain finger printing or say brainwave mapping.

3. If labs are established in the private sector, brain finger printing technique could be used for diagnosis of Alzemier's disease, pre employment screening of VVIP security staff, in cases of cheating spouses etc,.

4. Classically the test should be administered meticulously in three stages :

a. Brain fingerprint Crime Scene Evidence Collection. – Test administrator should personally visit the crime scene and acquaint himself/herself with facts of case and pick up evidences which are important and missed out by the police/ Investigating Officer.

b. Brain Fingerprinting Brain evidence collection - set of images or sounds used by the administrators of test should be formulated by the administrators themselves. Should never rely or depend solely on the information provided by the police or I.O.

c. Brain Fingerprinting Computer Evidence Analysis – with a bit of training and experience, analysis and interpretation of findings should not be a problem.

Reference:

1. Paul Root Wolpe, Kenneth R. Foster, Daniel D. Langleben, University Pennsylvania. Emerging Neurotechnologies for Lie-Detection: Promises and Perils, The American Journal of Bioethics, 5(2): 39–49, 2005 available from URL:http://repository.upenn.edu/cgi/viewconte

Accessed on 23rd July 2006.

2. J. Peter Rosenfeld, Ph.D. Northwestern University, “BRAIN FINGERPRINTING:” A CRITICAL ANALYSIS; In Press 2005 for The Scientific Review of Mental Health Practice. Available from URL:http://groups.psych.northwestern.edu Accessed on 15th may 2006.

3. http:/www.brainwavescience.com Accessed on 23rd July 2006.

4. Justice R. K. Abichandani, Judge, High Court of Gujarat, presented a document at the Workshop on "Brain Fingerprinting - An Important Tool In The Investigation of Crimes" on July 24 - 25, 2004. http://gujarathighcourt.nic.in/Articles/articles.htm Accessed on 23-07-06.

5. A Naresh Babu, Scientific Officer, AP FSL “Brain Fingerprinting” Available from URL: http://www.cidap.gov.in/documents/Brain%20Fingerprinting Accessed on 23-07-06

6. URL: http://www.brainwavescience.com/Chemistry.php. Accessed on 23-07-06.