

Validation of Shoe Smelling in Epilepsy: Empirical Evidence

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Abstract

Epilepsy has been known for thousands of years and still remains one of the commonest neurological disorders worldwide. Since long, various forms of alternative medicine have been practiced to control epileptic seizures; one such practice is application of shoe-smell especially in some eastern countries and which continues to be in vogue even today. An underlying scientific basis of this practice has been proposed earlier. This brief paper presents emerging empirical evidence that apparently validates the scientific basis of the practice of shoe-smelling to control epileptic seizures.

Keywords: *Aromatherapy; Eastern Countries; EEG-Desynchronization; Olfactory Stimulation; Piriform Cortex; Traditional Practice*

Introduction

Epilepsy is one of the oldest and commonest neurological disorders prevalent worldwide even today and aromatherapy has been practiced as a remedy for epilepsy for a long time. In as early as 1881, Gowers had suggested that the application of a strong aroma may in some cases arrest the course of a seizure [1].

In eastern countries, an apparently strange and ridiculous sounding traditional practice of shoe smelling in controlling epileptic attacks has been prevalent that however possesses a putative underlying neurophysiological basis [2] and which is essentially based on induction of wide spread EEG-desynchronization by strong olfactory stimulation in the form of shoe smell [2] leading to physiological activation of olfactory cortex that potentially disrupts the progression of epileptic discharges. This brief paper presents further empirical evidence in an attempt to validate the underlying scientific basis.

Empirical evidence

For some reason, the role of piriform cortex (PC) has not been accorded desired significance in the understanding of human epilepsies and which cannot be ignored as like the hippocampus, it too is vulnerable to excitotoxic injury and is highly epileptogenic. The PC is a common target of epileptic discharge spread, particularly in temporal and frontal lobe epilepsies (commonest forms of epilepsy) and therefore, it can act as a distributor of epileptic discharges by facilitating seizures with a limbic origin to spread into olfactory and cortical networks, and vice versa [3,4]. In view of this property, PC stimulation can prevent piriform-mediated amplification and distribution of widespread epileptic discharges.

As mentioned earlier [2], strong physiological activation of olfactory cortex can temporarily prevent or disrupt the progression of epileptic discharges as the smell also produces a change in cognitive state, for example alertness that also is associated with EEG-desynchronization [5] and is documented to exert potent anti-epileptic influence.

In yet another study [6], there is strong evidence that the olfactory stimulation with toluene provokes changes in the behavioral expression of brainstem and limbic seizures in the Wistar Audiogenic Rat strain by either preventing the seizures or significantly decreasing their severity; these findings also indicate that olfactory stimulation modulates the epileptic activity, suppressing or inhibiting it [7]. This sensory stimulation could interfere in the neuronal synchronization that is typical of a seizure activity, disrupting its ability to recruit structures that transmit ictal alterations to other regions and precipitate seizures. Alternatively, as mentioned earlier, EEG-desynchronization can exert strong anti-epileptic influence by disrupting recruitment or propagation of the epileptic discharges and prevent or even arrest the precipitation of seizure-attacks.

Conclusion

Thus, the emerging evidence from experimental studies does appear to validate the scientific basis proposed earlier [2] for the traditional practice of shoe smell as a remedial measure in epilepsy especially in eastern countries.

Lastly, it is reiterated that this brief paper is in no way intended to promote the traditional practice, but is strictly meant to understand the underlying logic of a practice that has lingered for centuries and continues to be in vogue even today; albeit, in some eastern regions.

Declarations of Interest

None.

Finding Source

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