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The Trace Amine Hypothesis in Schizophrenia Etiology

Kenji Washio*

Department of Biomedical, Korea University, South Korea

Abstract

Dopamine (DA) hyperactivity in the mesolimbic system is a well-known pathophysiological theory of schizophrenia. The scientist hoped to present a novel theory that would shed light on the molecular basis of schizophrenia's mesolimbic DA hyperactivity. The D-neuron (trace amine (TA) neuron) decrease in the nucleus accumbens (Acc) of ponies was demonstrated using patent-required histochemical methods under the Patent Cooperation Treaty (PCT). In short, in schizophrenia, a decline in striatal D-neuron activation and, as a result, a decrease in TAAR1 (TA-associated receptor, type 1) stimulation into terminals of midbrain ventral tegmental region (VTA) DA neurons causes mesolimbic DA hyperactivity. D-neuron loss in Acc is caused by dysfunction of subventricular neural stem cells (NSC), which are partly overlapping Acc. Hyperactivity of the DA. The rationale that the "D-cell hypothesis (TA hypothesis) of schizophrenia" is a critical idea in linking NSC pathology to the DA hypothesis is highlighted. (1) TAAR1 agonists, (2) DA D2 antagonists, and (3) neurotropic agents have the ability to normalise mesolimbic DA hyperactivity from a therapeutic standpoint. The synthesis of TAAR1ligands, as well as the pathophysiology of NSC- and D-neuron in neuropsychiatric disorders, must be investigated further in order to improve new therapeutic techniques.

Introduction

In the electromagnetic spectrum, radiation between 10 KHz and 300 GHz is called emitted from mob antennae and used in wireless networking. The foundation of mobile (cellular) telephony is two-way radio contact between a wireless phone and the closest basestation. Any base-station serves a cell, which can range in size from hundreds of metres in heavily populated cities to kilometres in rural areas, and is linked to both the traditional land-line telephone network and nearby base-stations by closely oriented line-of-sight microwave connections. The call is passed between base stations without delay while the operator of a mobile phone transfers from cell to cell. People are now taking advantage of technical advancements thanks to improvements in mobile phone connectivity. In 2009, the world's mobile phone users were expected to number about 3 billion. In about a third of the countries, the number of people using mobile phones outnumbers the number of people living there. Mobile technology is now commonly used around the world, and its use is rapidly increasing, not just for interpersonal networking but also as an integral part of the communication system for sectors such as banking, education, and market research [1-3]

In this study, pregnant female adult rats (Sprague Dawley strain) with an average weight of 204–236 g were obtained from the animal house of Cairo University's Faculty of Veterinary Medicine [4].

According to new research, using a cell phone for an hour straight triggered hearing loss. Mobile phone radiation also lowers preparatory slow potentials in some brain areas, affects memory functions, and raises resting blood pressure during exposure to radio frequencies. The human brain is subject to comparatively high specific absorption rates (SARs) compared to the rest of the body due to the near proximity of the cell phone interface to the head. In most parts of the world, mobile phones are widely used, but most of us are unaware of their harmful effects on public wellbeing. The electromagnetic radiation emitted from cell phones has the potential to damage the human brain. The primary goal of this study was to see how exposure to EMF released from a cellphone affected monoamine neurotransmitters (Noradrenaline, adrenaline, histamine, serotonin, melatonin, and dopamine) in Albino newborn rats. Histamine in the brain is linked to brain homeostasis and the regulation of many neuroendocrine functions. Histamine is involved in the modulation of mood, cellular rhythms, body weight, energy metabolism, thermoregulation, fluid equilibrium, stress, and reproduction.

Conclusion

According to the findings of the current research, exposing newborn rats to EMF could be enough to cause drastic changes in the content of monoamine neurotransmitters in the exposed rats.

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***Corresponding author:** Kenji Washio, Department of Biomedical, Korea University, South Korea; E-mail: washiokenjii@gmail.com

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