Mini Review
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Possible influence on the Thymus Gland role to neutralize any foreign organisms acting on human brain subjects through Pineal Gland normal function and melatonin hormone synthesis

Abstract

On the present study there are reviewed the Pineal Gland and Thymus Gland interaction and their effect on the immune system stimulation through the melatonin hormone. Starting point for the study was the response of the patients, with different brain disorders, on the application of external pico-Tesla Transcranial Magnetic Stimulation (pT-TMS). This response was potentially related with the normal function of the Pineal Gland (PG). Moreover, due to the close interaction of PG with Thymus Gland (TG) it is proposed that pT-TMS can be used so as to enhance TG effectiveness in neutralizing foreign organisms acting on human brain.

Keywords: pineal gland, thymus gland, melatonin, magnetoencephalography, pico-tesla transcranial magnetic stimulation

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Introduction

In our previous studies[1] we have stated that PG, is an important magnetosensitive organ, located on the top of the third ventricle of human brain. Its main role is the nocturnal secretion of the melatonin hormone, through which exerts control on several Central nervous system (CNS) organs in many brain centers i.e., the hypothalamus, cerebellum, thymus gland, reticular formation, substantia nigra and hippocampus.[2] From the above centers, TG is generating the white blood cells, called T cells. The T cells built the protection mechanism of the human body against infectious agents, mainly defined by the actions of the five immmunonoglobulins,[3] also called antibodies. These antibodies, are in fact glycoprotein molecules that constitute highly important components of our immune system.

The five antibodies are IgA, IgD, IgE, IgG and IgM. By examining each one of these antibodies we have seen that the first IgA represent 15% of the antibodies in the human system, and is the second common type of the [2] antibodies which were found only with 6% in the blood serum. The second antibody igD accounts for 0.2% of the serum antibodies in the human immune system, having two epitope binding sites. The third IgE antibody accounts for only about 0.002% of the serum system, from all antibodies, and it plays an important role in the immune system, having two antigenic binding sites and a short half-life of 48 hours. The fourth IgG is known to be the most dominant antibody in the human body, accounting for the 85% of all antibodies with a half life of 7 to 23 days. It has the ability of neutralizing toxins and viruses and killing bacteria and prevalent in the system. In addition, IgE and IgG antibodies antibodies can enter tissues t**o** confront invaders. Finally, the fifth IgM is the most remarkably preeminent of the antibodies with a short half-life of about five days and represents 13%-15% of serum antibodies, having 10 epitope-binding sites making it strong adversary.[3] From the above, It is clear that IgA, IgG and IgM are the most important antibodies, in terms of the half-life, their percentage in the plasma serum, their epitope-binding sites[3] and their defensive profile. It is very interesting to know that our body produces the antibody IgM by the age of nine months, providing that the PG is not calcified, and its function regulates properly the TG. A highly calcified PG results in reduction of melatonin secretion and deregulation of the TG .Therefore, a decrease of the protection level against infection by foreign organisms[3] is more along with the onset of several human organism abnormalities

Methods

In this research, for the decalcification of the PG, a specific electronic device was developed,[9] based on the USA patent (5453072-1955). Due to COVID-19 restrictions, it was difficult to setup a proper protocol in order to have patients infected with various foreign viruses. However, in the past years we have applied our method in more than 500 patients with different brain disorders such as, epilepsy, Parkinson's disease, Alzheimer's disease, autism, and migraine. All of the under research human subjects had one thing in common, a calcified PG. They all came from different parts of the world (England, Germany, USA, Australia, Canada, Turkey, Thailand and other countries). All patients were informed and gave their consent for the methodology and the aim of the study prior to the procedure. We also had the approval of the Research Committee of our University to record with the magnetoencephalogam (MEG) on these patients, using SQUID technology.[4–8] The procedure in all these patients using the pT-TMS and repeated MEG recording before and after the application of the (pT-TMS), as we have thoroughly reported in few of our publications,[4–8] have shown a positively statistically significant effect since 7 out 10 patients declared substantial clinical improvement and rapid attenuation to their symptoms. Our goal for this specified effect we have use the pT-TMS electronic device[9] after applying (Fast Fourier Tranform) FFT analysis. The device is a 122-coil helmet, arranged in five groups in order to cover the 7 brain areas

of the patient (Right Temporal, Left Temporal, Right Parietal, Left Parietal, Frontal, Occipitial and Vertex). In this way was designed to create magnetic flux in the alpha frequency range (8-3Hz) for every patient. This device produces a square wave format equivalent to the neuron's interaction or communication in the brain.[4–8]

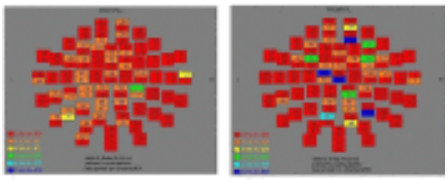
For the acquisition we have developed a software program in our all publications in order to score the Primary Dominant Frequencies (PDF) of the power spectra of the MEG obtained from all patients affected brain regions prior and following the weak TMS. The PDF for each signal was detected after applying FFT. As is explained in our publications[4–8] there is a 7s duration MEG segment in each patient with the corresponding amplitude spectrum which is derived following the FFT analysis. Following the analysis of the PDF we have constructed two-dimentional color maps for the spatial distribution of the primary dominant frequencies based on these frequencies estimation for each affected brain region and channel in the constructed map. Each color in the maps depicts different primary dominant frequencies and each number in the map squares indicates groups of the MEG channels.

Statistical analysis using unpaired Students's t-test and values $p<0.05$ of repeated MEG recording data from the human patients with various brain disorders before and after the (pT-TMS)Transcranial Magnetic Stimulation showed a positively statistically effect in the range of 60-75%.[4–8]

In addition from the above was found that the proper function of the decalcified PG and particularly the TG was help to overcome any brain disorder and foreign organisms acting on the humam brain. They also reported significant clinical improvement on their symptomalology.

Appendix

For the clarifications in the Methods



The color maps for a patient[4] before and after weak TMS. The constructed color PDF frequencies are [red (2), yellow (3), orange (4), green (5), azure (6) and blue (7).

For the numbers of the channels in each square in the map we have the following brain areas:

Right Temporal (1-14,111-120)

Left Temporal (43-50, 55-62, 67-74)

Right Parietal (5-6, 11-16, 97-100, 109, 110, 115-122)

Left Parietal (47-52, 59-64, 71-74, 79, 80, 87-90)

Frontal (17-42)

Occipital (75-86, 91-96, 101-110)

Vertex (13-16, 49-54, 61-66, 73, 74, 89, 90, 100, 117-122)

The maximum frequency between the first MEG recording before stimulation (BS) and the MEG recording after stimulation (AS) for the affected brain regions for the patient 1 for the publication[4] are:

Right Temporal (BS)=5 and (AS)=5

Left Temporal (BS)=3 and (AS)=5

Right Parietal (BS)=5 and (AS)=6

Left Parietal (BS)=3 and (AS)=6

Fronta (BS)=3 and (AS)=6

The statistical analysis for this patient marked in bold is statistically significant at $p<0.05$ as we can see

The mean f(BS)=3.80+-1.10

The mean f(AS)=5.60+-0.55

t-Test p-value=**0.0111**

Discusssion

For decades PG has earned scientific interest for elaborate research as a neuro immune buffer[10] Proper function of this tiny neuroendocrine gland seems to achieving a place in medicine by acting as a sealed against serious neurological abnormalities and aging related neurodegenations.[2] Most of the brain disorders studied are related with damaged PG and impaired melatonin hormone synthesis and secretion.[2]

Moreover, several studies focus on the interaction between PG and immune system through the PG- Melatonin- Thymus Gland (TG) axis.[11] The results demonstrate that an unpaired and non-calcified PG via TG activation, is highly related with immune system potency to gain and maintain human organism homeostasis[11] . In our study, for the first time, pT-TMS is applied on human patients with serious brain disorders and calcified PG with significantly encouraging results on their clinical profile. Nevertheless, regardless of pT-TMS positive effect on human brain the exact mechanism or path that led to this outcome remains undefinable.

Even so, a sensible method could be that extremely low magnetic fields trigger inner pathways and neurotransmission nets of PG with different brain centers, via melatonin, to act as buffers over any possible neurologiacal disorder.[4] Moreover, this kind of magnetic stimulation can probably affect the PG-TG pathway, by normalizing PG activity, which is significantly impaired when being calcified, resulting in a potent immune system response over any abnormality.[11]

Conclusion

For summarizing the above results, it can be stated that, provided that the PG's is normal properly functioning and thus ability in producing the melatonin hormone, results in a mighty interaction with the several different brain centers, which might contribute to overcome a variety of neurological disorders. Also, a decalcified PG, provides a proper function of the neuro-immune PG-TG path and an effective immune system activity against human brain dysfunction and neurological diseases, even those resulting from foreign organisms (viruses, bacteria, etc) and particularly to the TG, which affects the production of the proper antibodies in the blood plasma serum.

Therefore, the proper function of a decalcified PG may help to overcome any brain disorder and foreign organisms acting on the human brain. However, furthermore studies need to be performed including patients suffering from different neurological abnormalities and infectious, in order to have a promising therapeutic plan for human life and health.

Acknowledgments

None.

Conflicts of interest

The authors declare that there are no conflicts of interest.

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