

Role of Gray Matter in Depression and Ways to Overcome Depression Using Appropriate Medications and Psychological Therapy

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Abstract

Depression is a mental state when one feels helpless and unable to control different thoughts and has difficulty accomplishing daily tasks. The reduction of gray matter is noticeable in depression, especially in major depression disorder. There are various Psychological and medical treatments available for depression disorder, such as cognitive therapy and drugs like Ginkgo Biloba and Glutathione. Ginkgo Biloba plays a role in dementia and cerebral deficiencies. At the same time, glutathione is an antioxidant that prevents the brain from reacting with oxygen species and is good at maintaining cellular thiol status. Glutathione also removed depressive-like behavior in mice through its oral administration. The time taken by each therapy is approximately 3-6 months. Cognitive therapy works by altering thinking patterns, and if it is combined with medication therapy of GSH and Ginkgo Biloba, calculating the appropriate dose early and long-lasting results can appear. Where drugs will help in replenishing the gray matter and fluids that our brain requires for proper working.

Keywords: Depression, Gray matter, cognitive Therapy, MRI

Introduction:

Depression is when a person feels powerless, a person's ego is not satisfied, and the person can not live up to firmly maintained narcissistic aspirations (1). In the diseases like Bipolar and significant depression, the volume of gray matter decreases. The gray matter reduction was more in the brain's cerebellar, temporal, and parietal regions (2). It is reported that depression nowadays varies from 37% to 45% in different states worldwide.

The human brain is particularly susceptible to forming reactive oxygen species because of its high oxygen consumption. GSH is essential for protecting the brain from free radicals and preserving redox equilibrium. With aging and several neurological diseases (Alzheimer's disease, Parkinson's disease, etc.), postmortem and in vivo MRS tests have shown that brain GSH has been depleted. A potential path for developing treatments for these neurological illnesses is thus through the supplementation of GSH. This review will contribute to a better understanding of the importance of GSH synthesis, metabolism, functions, compartmentation and interorgan transport, structural conformations, and its quantification utilizing diverse techniques. It also covers the transit of GSH inside the brain via several interventional pathways and its potential role in developing therapeutic regimens for many brain diseases. A recent study found that oral GSH treatment dramatically reduced behavioral abnormalities, such as cognitive decline and depressive-like behaviors, in app (NL-G-F/NL-G-FG-) mice. This animal model study highlighted the urgent need to finish the suggested GSH supplementation trial in MCI and AD patients for cognitive improvement (7). Despite using these different therapies at different stages, if these are combined and used within appropriate ranges, then much better, faster, and long-lasting results can be obtained.

Conclusion

If different therapies are combined for the treatment of depression, then we can find very positive results. Cognitive therapy focuses more on cognition and helps eliminate negative thinking patterns and assumptions.

It's a leading problem that affects an individual's quality of life(3). Females are more likely to suffer from depression(4). Different treatments are available for depression, like cognitive therapy, which comes under psychology. It is a powerful approach for long-term results and has been used for a long time (5). But treatment through medication is also extensively used nowadays. Two main drugs are involved in replenishing gray matter and reducing depression. Those drugs are Ginkgo Biloba and Glutathione, which helps replenish the gray matter if therapy is continued for an appropriate time (6, 7)

Discussion

Depression is a problem that has many causes and many treatments available. While a person goes through depression, he is complete or partially helpless.

The quality of life and self-esteem of such a person is disturbed. It starts from little things and, if not treated in time, can lead to significant depression, and many changes are produced in brain fluids, like lowering of gray matter in many parts of the brain that is shown by different tests like MRI (1, 2). Particularly in individuals with lower levels of self-evaluated social skills and more serious interpersonal issues, cognitive therapy sessions seem to promote a subsequent reduction in depression symptoms. (4) cognition therapy has shown very positive results, but still, the positives are sometimes reversed; this is mainly because the brain gray matter was not replenished during the therapy and another limitation of cognition therapy is its time taking. But in most cases, its results are positive and long-term. Another treatment used for depression is medication. The significant substance to be highlighted is ginkgo Balibo, used as a standardized preparation containing 6% terpene lactones and 24% ginkgo flavonoid glycosides. A regular dose of 120-240 mg is given twice or three times daily. It has been demonstrated that it helps to improve the signs of dementia and cerebral insufficiency. Ginkgo Balibo extract can stabilize social and cognitive functions in dementia patients. Ginkgo Balibo extract can stabilize social and cognitive functions in dementia patients(6). Glutathione is yet another medication that aids in healing. The crucial antioxidant glutathione (GSH), produced in large amounts and under strictly controlled conditions inside cells in the cytoplasm, is widely distributed. It carries out several physiological functions, such as maintaining the cellular thiol status, protecting against free radicals, and preventing reactive oxygen and nitrogen species.

Ginkgo extracts or glutathione will replenish the gray matter that allows the brain's function when used in the appropriate range. Time for this therapy can be between 3 months to 6 months, according to the studies. But the limitation of this approach is that doses of the drugs used should be monitored accurately. (2, 3, 7)

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