

Study of Glioblastoma Etiology and Potential Vitamin D Effect on Glioblastoma Prevention and Treatment

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1. Short Communication

Glioblastoma the most common and most aggressive form of brain tumor, which accounts for up to 52% of primary brain tumors and up to 20% of all intracranial tumors. Despite the fact that glioblastoma is the most common primary brain tumor, only 2-3 cases of the disease are registered per 100,000 inhabitants of Europe and North America [1]

Etiology remains poorly researched, because genetic factors, physical (radiation) and chemical (vinyl chloride, pesticides, chemicals in the oil refining industry) influence on cell mutations are distinguished in most articles on this topic [2]. At the same time, epidemiology researchers identified 3 main risk factors – male gender, age older than 50 years and ... birth in winter [3]. Comparative studies on blood bank specimens revealed that higher prediagnosis levels of calcidiol are associated with lower risk of GBM in elderly men. Supplemental Vitamin D reduced mortality in GBM patients in comparison to nonusers [4].

Vitamin D is a seco-steroid hormone with multiple functions in the nervous system. We discuss clinical and experimental evidence of the role of vitamin D in normal and pathological brain functions, and analyze the relative importance of vitamin D-modulated brain mechanisms at different stages of life. We also outline perspectives for the use of vitamin D in clinical nutrition to prevent or treat various brain disorders.

2. Recent Findings

Numerous brain dysfunctions are linked to vitamin D deficits and/or dysfunctions of its receptors. In both animals and humans, vitamin D serves as an important endogenous and/or exogenous regulator of neuroprotection, antiepileptic and anticalcification effects, neuro-immunomodulation, interplay with neurotransmitters and hormones, modulation of behaviors, brain ageing, and some other, less-explored, brain processes [5].

3. Summary

Glioblastoma etiology needs to be studied further. Integration of Vitamin D into glioblastoma prevention and treatment protocols should be more studied and may potentially cause better results in glioblastoma treatment and prevention.

References

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