

Summary

Glioblastoma multiforme (GBM) is the most common primary brain tumor in adults. Most (90%) of patients with GBM die within 1-2 years of diagnosis. The cause of these brain tumors is still mostly unknown. The known risk factors, high levels of ionizing radiation and familial predisposing syndromes, explain fewer than 5% of all cases. Several studies have associated infection and risk of glioma showing a lower risk of glioma in adults who had either chicken pox or shingles at some point prior to the discovery of their brain tumor. Recent studies also suggest a protective effect of asthma and allergies for brain tumors. Inflammation is an important mechanism in all tissues for maintaining genomic stability, including brain. We think that differences in how people respond to infection and inflammation is likely to contribute to glioma development through the formation of substances that damage the DNA in cells where inflammation takes place. We propose to create and analyze a centralized database of DNA variants between people with GBM and healthy people without brain tumors. This will be done by using DNA that has already been collected for large brain tumor studies at M. D. Anderson Cancer Center and the University of California-San Francisco. Performing this study will allow us to better understand the role that inflammation may play in the development of brain tumors. This may also be relevant to how people with brain tumors respond to therapy and their ability to survive after diagnosis.