Expression of cytomegalovirus in glioblastoma multiforme: Myth or reality?

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Abstract

A role for human cytomegalovirus (HCMV) in the pathogenesis of glioblastoma multiforme (GBM) was proposed more than a decade ago and has since generated a considerable debate as a possible therapeutic target. We investigate the presence of HCMV in the specimens of patients with GBM treated in our centre. This is a retrospective cohort study to investigate the presence of HCMV by routine immunohistochemical stains and polymerase chain reaction (PCR)-based molecular analysis on formalin-fixed-paraffin-embedded tissue of all patients with GBM treated in our hospital in 2009-2013 (5 years). The evaluation of positivity by immunohistochemistry (IHC) was semi-quantitative. The molecular analysis was performed by extracting the tumour DNA from representative paraffin-embedded tissue blocks and amplified for detection by a sensitive real time PCR (RT-PCR) CMV assay. During the study period, we treated 45 patients with GBM; however, adequate pathology tissue materials were available only for 32 patients. All the pathology material was reviewed and the diagnosis was confirmed. All the cases were found to be negative for CMV expression by our IHC and RT-PCR CMV assay. Our study has shown no expression of CMV in GBM. Our results were similar to other recent reports that concluded insufficient evidence to recommend routine testing for CMV in GBM or treatment as an add-on therapy.

KEYWORDS: Cytomegalovirus; glioblastoma; glioma; multiforme

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