

Liquid Biopsy and Screening Biomarkers in Glioma Grading

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Abstract : Background: Gliomas represent the most frequent, heterogeneous group of tumors arising from glial cells, characterized by difficult monitoring, poor prognosis, and fatality. Tissue biopsy is an established procedure for tumor cell sampling that aids diagnosis, tumor grading, and prediction of prognosis. We studied and compared the levels of liquid biopsy markers in patients with different grades of glioma. Also, it tried to establish the potential association between glioma and specific blood groups antigen. Result: 78 patients were identified, among whom maximum percentage with glioblastoma possessed blood group O+ (53.8%). The second highest frequency had blood group A+ (20.4%), followed by B+ (9.0%) and A- (5.1%), and least with O-. Liquid biopsy biomarkers comprised of ALT, LDH, lymphocytes, Urea, Alkaline phosphatase, AST Neutrophils, and CRP. The levels of all the components increased significantly with the severity of glioma, with maximum levels seen in glioblastoma (grade IV), followed by grade III and grade II respectively. Conclusion: Gliomas possess significant clinical challenges due to their progression with heterogeneous nature and aggressive behavior. Liquid biopsy is a non-invasive approach which aids to establish the status of the patient and determine the tumor grade, therefore may show diagnostic and prognostic utility. Additionally, our study provides evidence to demonstrate the role of ABO blood group antigens in the development of glioma. However, future clinical research on liquid biopsy will improve the sensitivity and specificity of these tests and validate their clinical usefulness to guide treatment approaches.

Keywords : GBM: glioblastoma multiforme, CT: computed tomography, MRI: magnetic resonance imaging, ctRNA: circulating tumor RNA

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