THE STUDY OF PROGNOSTIC VALUE OF IDH1 CODON R132 IN ADULT PATIENTS WITH BRAIN GLIOMA TREATED BY RADIOTHERAPY WITH OR WITHOUT CHEMOTHERAPY

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Abstract

Background: Malignant gliomas are the most common primary malignant brain tumors in adults . In Egypt; Gliomas were the CNS tumors of the highest frequency (35.2%), followed by meningioma (25.6%) , The human genome has five isocitrate dehydrogenase (IDH) genes coding for three distinct IDH enzymes whose activities are dependent on either nicotinamide adenine dinucleotide phosphate (NADP+ -dependent IDH1 and IDH2) or nicotinamide adenine dinucleotide (NAD+ -dependent IDH3) . we will focus in this study on IDH1 gene mutation and its impact on overall survival and progression free survival in adult patients with brain gliomas .

Aim: The aim of the present work is to evaluate the prognostic value of IDH1 mutations in adult patients with brain gliomas and its magnitude on OS & PFS.

Subjects & Methods: The subjects of this study were 30 patients with brain glioma (21 LGGs & 9 HGGs) , all subjects were under follow up from 2010 till 2016 , observation period was of a minimum of 1 year , and 5 years as maximum .Methods and conditions for detecting the IDH1 R132H mutation by IHC with mouse monoclonal antibody H09 (Dianova, catalog number DIA H09, Hamburg, Germany) on an automated immunostainer (BenchMark, Ventana Medical Systems, Tuscon, AZ, USA) have been described in detail elsewhere .

Results:IDH1 mutation alone have a better prognosis than IDH1 wild type in both LGGs and HGGs . O.S was significantly affected with better outcomes by low grade Histology (P value = 0.012) GI & II than GIII & IV (P value = 0.002) , also better outcomes with IDH1 mutations , treatment response , however statistically insignificant .

PFS was significantly affected with better outcomes for low grade histology (P value of 0.001) , GI & II than GIII & IV (P value = 0.002), IDH1 mutation (P value = 0.020) & treatment response (P value = 0.042) .

Conclusion: In conclusion, the IDH1 mutation status distinguishes low grade and high grade gliomas into clinically meaningful prognostically distinct subgroups that possibly require different first-line treatment and carries a better OS & PFS than wild type .

Key words: IDH1, Glioma , mutation , wild type .