Retrospective Analysis of Epidemiology and Clinical Outcome of Adult Glial Tumor Patients Treated in Clinical Oncology Department in Ain Shams University Hospitals in Egypt

Thesis

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List of Abbreviations

Abb.	Full term
3D	Three-Dimensional
3DRT	Three-Dimensional Radiation Therapy
AA	Anaplastic astrocytoma
AI	Apoptotic Index
BBB	Blood-Brain Barrier
BFGF	Basic Fibroblast Growth Factor
CAM	Cell adhesion molecule
CCDC26	Coiled coil domain containing 26
CDKN2B	Cyclin-dependent kinase inhibitor 2B
CNS	Central nervous system
CSF	Cerebrospinal fluid
CT	Computed Tomography
CTV	Clinical Target Volume
CTV	Clinical Tumor Volume
DFS	Disease-Free Survival
ECOG	Eastern Cooperative Oncology Group
EGFR	Epidermal Growth Factor Receptor
EGFRvIII	EGFR Deletion Mutant Variant III
EORTC	The European Organization for Research and Treatment of Cancer
ERBT	External Beam Radiation Therapy
FDA	Food and Drug Administration
FISH	Fluorescence in Situ Hybridization
FLAIR	Fluid-Attenuation Image Recovery
GB	Glioblastoma
GBM	Glioblastoma Multiforme
Gd	Gadolinium
GLUT	Distinct Facultative Glucose Transporter
H&E	Heamatoxylin and Eosin
HGG	High grade glioma

List of Abbreviations Cont...

Abb.	Full term
HIF	Hypoxia-Inducible Factor
ICP	Increased Intracranial Pressure
IDH	Isocitrate dehydrogenase
IGRT	Image Guided Radiation Therapy
IMRT	Intensity-Modulated Radiation Therapy
IR	Incidence rate
KPS	Karnofsky Performance Score
LGA	Low Grade Astrocytomas
LGG	Low grade glioma
LI	Labeling Index
LTSs	Long-Term Survivors
MET	Methionine
MLC	Multileaf Collimator
MMSE	Mini-mental state examination
MRI	Magnetic Resonance Imaging
MRS	Magnetic Resonant Spectroscopy
NCIC	National Cancer Institute of Canada
NCRPE	National Cancer Registry Program of Egypt
NOS	Not otherwise specified
OAR	Organs at Risk
OS	Overall Survival
PCNA	Proliferating Cell Nuclear Antigen
PDGF	Platelet-Derived Growth Factor
PET	Positron Emission Tomography
PFS	Progression-Free Survival
PHLDB1	Pleckstrin homology-like domain family B member 1
PS	Performance status
RT	Radiotherapy

List of Abbreviations Cont...

Abb.	Full term
RTEL1	Regulator of telomere elongation
RTPCR	Reverse Transcriptase Polymerase Chain Reaction
SEER	Surveillance, Epidemiology, and End Results Program
SRS	Stereotactic Radiosurgery
SSTR2	Somatostatin Receptor Subtype 2
SUV	Standard Uptake Values
TERT	Telomerase reverse trascriptase
TGF	Transforming Growth Factor
TMZ	Temozolamide
TP53	Tumor protein p53
VEGF	Vascular Endothelial Growth Factor
WHO	World Health Organization
WM	White Matter

INTRODUCTION

Glial cells are the supportive elements of the central nervous system (CNS). They include astrocytes, oligodendrocytes, and ependymal cells, and the corresponding tumors originating from these cells astrocytoma, oligodendroglioma, and ependymoma all of which are loosely called "glioma" ***(Estlin and Lowis, 2005)***.

The annual incidence of glioma in the United States is 5.4 cases per 100,000 population. Incidence differences are not significant between the United States and other countries. Astrocytomas, including glioblastoma (GBM), account for approximately 75% of all gliomas ***(Ostrom et al., 2013).***

The therapeutic strategies and prognosis in patients with astrocytomas depend on the precise distinction between high-grade astrocytomas (HGAs; WHO grades III and IV) and low-grade astrocytomas (LGAs; WHO grades I and II). Low- and high-grade astrocytoma differs significantly in terms of their histological grading, site of origin, treatment, and prognosis ***(Singh et al., 2004).***

Astrocytoma causes regional effects such as compression, invasion, and destruction of brain parenchyma. Secondary clinical sequelae may be caused by elevated intracranial pressure (ICP) attributable to direct mass effect, increased blood volume, or increased cerebrospinal fluid (CSF) volume.

According to the American Brain Tumor Association (ABTA), for low grade astrocytomas, removal of the tumor will generally allow functional survival for many years. Todate, complete resection of high grade astrocytomas is impossible because of the diffuse infiltration of tumor cells into normal parenchyma, necessitating radio and chemotherapy ***(American Brain Tumor Association, 2014).***

Survival -starting from the time of diagnosis- ranges from more than ten years for Pilocytic astrocytomas and down to approximately one year to Glioblastoma.

AIM OF THE WORK

To analyze retrospectively the clinico-pathological features and outcome of glial tumor patients treated in clinical oncology department in Ain Shams University Hospitals in Egypt.