Low grade Gliomas Multi Modality Approach

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Summary:

Background: Gliomas are brain tumours of supporting tissue of the brain. The management of low grade glioma is still a great debate ranges from just follow up to extensive surgery followed by DXT, with or without chemothery.

Patients and Methods: 282 patients taken from neuro-surgical hospital between 1980-1990, divided to 3 groups with different modality of management & follow up for 15 years.

Results: the five years survival and symptomatic improvement was higher in the group managed by extensive surgery and DXT with or without cytoxic drugs followed by group managed by biopsy and DXT with or without cytoxic.

Conclusion: management of low grade glioma symptoms & out come (survival) is best by extensive surgery & DXT with or with out cytotoxic, followed by biopsy & DXT with or without cytotoxic drugs.

Keywords: glioma, DXT, cytotoxic drugs.

Introduction:

Gliomas are brain tumors that arise from the glial tissue ((supportive tissue of the brain.)) (1) they are differently located & can be classified into: A- Astrocytic Neoplasms (1) fibrillary astrocytoma which is subdivided into astrocytoma grade I, astrocytoma grade II, astrocytoma grade III and astrocytoma grade IV (2) optic nerve astrocytoma, hypothalmic glioma, cerebellar astrocytoma (child tumurs) B- oligo dendro gliomas c- ependymomas d- Mixed glioma (2). There are different ways of classification the astrocytoma grade I & II optic nerve astrocytoma, hypothalamic gloma, & cerebell or astrocyte & well differentiated oligo dendro gliomas & ependymomas are regardes as low grade gliomas (3).

Clinical features: includes: a- General symptoms of ↑ ICP as head ache, papaelledema, vomiting 6^{th} n. plasy, epilepsy. b- specific symptoms depending on the location of the tumur as hemiplegia, hemiparesis, hemianaesthesia, disphasia, disartheria visual field scotomas …..etc. the time of symptoms can be from weeks to few years (4)

Diagnosis: Diagnosis is usually by CT scan or MRI. the most striking feature of CT scan of a low grade glioma is a low density mass that is poorly marginated from the surrounding brain tissue the mass effect is usually mild, there may be calcification, the mass is usually homogenous, with no or minimal enhancement with no or minimal oedema (5).Management: There is great debate in the management of low grade gleoma, & ranges from Follow up alone to Biopsy and Radiotherapy to extensive surgical removal with or without Radiography (6). The biopsy can be a burhole biopsy (7) or open biopsy (8) the extensive surgery is by formal craniotomy & tumor excision (9).

Patients and Method: This is a retrospective study of 282 patients with low grade gliomas, taken from Neurosurgical hospital from 1980-to1990 & the patients regarding the way of management were divided into 3 groups those manages by followup only (symtptomatic treatment) & those managed by biopsy & DxT with or without chemotherapy (cytotoxic) & those managed by extensive craniotomy with total or subtotal excision of the tumur & DxT with or without chemo therapy (cytotoxic).The follow up was at least for 15 years & comparative study was done between the 3 groups & conclusion given.

Results: Group: A is the group only followed up & symptomatic treatment. Group: B one the group managed by Biopsy & DxT ± cytotoxic. Group c: is the group managed by extensive surgery DxT ± cy totoxic

Table 1: Groups

	No.	%
Group A	80	28%
Group B	98	35%
Group C	104	37%
	282	100%

**Neurosurgeon in the Neurosurgical,Unit of specialized surgical hospital*

Table (2): clinical feature

	Epilepsy		Headache		papalaedema		Hemiparesis		Hemianaesthsia	
Group A	21	26%	68	85%	24	30%	6	7.5%	4	5%
Group B	23	23.4	92	94%	38	38.1%	10	10.2%	1	1%
Group C	28	27%	99	95%	63	60%	35	33%	10	9.6%

	Aphasia		Unsteady gait		others		
A	3	3.7%	/	0	9	11.4%	N.B. the number is more than 100% as the patient can have more than 1symptom
B	5	51%	2	2%	11	11.2%	
C	12	21%	12	11.5%	18	17.3%	

Table (3): the way of Management

	Symptomatic treatment	%	Biopsy +DXT	%	Biopsy + DXT+ cytotoxic	%	Excsssion +DXT	%	Exusion+DXT+ cytotoxic	%
A	80	100%	0	0	0	0	0		0	0
B	0	0	42	42.9	56	57.1	0		0	0
C	0	0	0	0	0		83	79.8	21	20.4

Table (4) Improvement of symptoms by multi modality management

	Epilepsy	headache	Papillae dema	Hemi paresis	Hemi anaes.	Aphasia	Unsteady gate
Group A	19 (90%)	30 (44%)	16 (66%)	0 (0%)	0	/ (33%)	-
Group B	21 (91%)	24 (26%)	32 (84%)	2 (20%)	0	3 (60%)	2 (100%)
GroupC	26 (92%)	78 (87.8)	62 (98.4)	32 (91.4%)	0	18 (81%)	22 (100%)

N.B the percentage is the percentage to the original symptoms of the patient

Table (5): Patient survival

	1 year survival	%	5 years survival	%	10 years survival	%	15 years survival	%
Group A	78	97.5%	60	75%	42	52.5	31	38%
Group B	97	98.9%	86	87%	71	72.4%	56	57%
Group C	104	100%	98	94%	83	80%	77	74%

Discussion:

There was slight ♀ predominance in our study which goes with most studies (8, 9, and 10)

the clinical presentation was different between the 3 groups (of course the groups which we divided) headache was the highest of clinical presentation 95% , 94% , 85% respectively which goes with most studies (8,9,10) & papallaedema was the 2nd clinical feature in group C.Epilespy was present around quarter of the patients in the 3 groups.which goes with most studies (8,9,10).Group A the diagnosis was only by CT, or CT + MRI in 2.5% of the patients but no biopsy was taken are they were managed conservatively, group b & c although the diagnosis is suggested by CT or MRI but the final & definit diagnosis is by histo path. exam.Regarding the symptoms in group A 90.4% showed improvement of epilepsy 44% of headache 66% of papillaedema by steroids 33% of Aphasia, & in group B 91.3% improvement of Epilepsy putting in mind that this also includes medical Treatment by antiepileptic 26% of headache, 84% for papillaedema 60% of aphasia, & 100% for gait Abnormality all the improvement of symptoms is due to the DxT, cytotoxic & medical drugs. Group C Show the best result for epilepsy 92.8 also with drug, & best result for headache 78.8% & papaellaedema 98.4%, 81% for aphasia, 100% for the gait disturbance regarding the symptoms groupC show the best result. Regarding the out come (Survival) , group C show the best result in the1 year, 5 years, 10 years 15 years survival, Followed by the B group. The result of outcome was so close to other studies, as saclman et al at 1982 (11) & the study of chintt.w.Hazel JJ at 1980 (12).

Conclusion:

Management of low grade glioma is still a debate we think that the management by extensive surgical excision followed by DxT, with or without cytotoxic carries the best results regarding the symptoms & survival of the patients followed by limited biopsy & DxT with or without cytotoxic

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