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The Glioblastoma Multiforme in Kerman-Iran, 1994-2004

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Abstract: To evaluate Glioblastoma Multiforme (GBM) which one of the astrocytic malignant central nervous system in Kerman province in Iran, the cross sectional study was designed. Of 120 patients with GBM in Kerman province were entered to evaluation. The incidence of Glioblastoma multiforme was estimated 6 cases per 100000 general population. The sex ratio was 2:1 (male:female). The average age of patients was 52.7 ± 17.6 with range of 3 to 80 years old. The most frequent age group in both sexes was upper 60 years old. Hemispheres were the commonest sites of tumor, specially parietal and temporal. Headache was the most prevalent symptom. Present findings determined that GBM are the frequent malignant brain tumors with male predominancy and occurrence during sixth and seventh decades of life. Hemispheres are the most prevalent location in brain and headache with nausea/vomiting is common.

Key words: Glioblastoma Multiforme, brain tumor, Kerman, Iran

Introduction

Glial tumors (or astrocytoma) are classified into four types according to degree of malignancy, type IV being in the highest growing and malignancy Glioblastoma Multiforme (GBM) (Beatriz *et al.*, 2003; Kotonski *et al.*, 2001). GBM, representing about 50% of all gliomas, encompasses a group of intrinsic tumors of the brain in later years and occurs less often in children (Jellinger, 1978). GBM comprised about 25% of intracranial tumors or 50% of intracranial gliomas in developed Western country reports (Beatriz *et al.*, 2003; Zimmerman 1966). It is important to know the age and sex and location specific distribution of GBM tumors at everywhere. Many distributed studies in Asia have revealed the varied prevalence regarding to GBM at this region. Shuangshoti and Panyathanya (1974) from Thailand reported only 12% GBM in the 1028 intracranial neoplasm. The purpose of the present study was to review and analyze cases of GBM that have occurred in patients in Kerman province-Iran during 10 years period (1994-2004).

Materials and Methods

During 10 years period from 1994 to 2004, all patients with intracranial neoplasm in Kerman were entered to study. All cases operated in neurosurgical department of Shahid Bahonar Medical Center

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of Kerman Medical Sciences University, which is the only center for brain tumor operation in this Province. GBM tumors were selected. Two pathologists (authors) in department of surgical pathology of Shahid Bahonar Medical Center reviewed the surgical specimens, blindly. A data collection form was sought information on surgical ward files by nurse/organ. Variable included in the analysis were indices by age, sex, tumor location and sign/symptoms.

Data were analyzed by Statistical Program for Social Sciences (SPSS) software version 11.5. The findings were shown in cross tables and descriptive diagrams. Chi square and t- tests did comparisons. In all comparison $p < 0.05$ assumed significant.

Results

Of a total of 120-brain glioblastoma, 82 cases were male and 38 were female. The male to female ratio was approximately 2:1. The age at diagnosis ranged from 3 to 80 years and mean \pm SD was 52.7 \pm 17.6. The maximum range of patients' age was upper 60 years old. There was not any significant difference in average of age at both groups of sexes. Table 1 depicts the prevalence on the age and sex of patients with brain glioblastomas in the all ages. The parietal lobe was the most frequent site of occurrence of glioblastomas in both sexes (Table 2). No significant relation was between site of tumors and age.

Table 1: Distribution of age and sex of 119 patients with Glioblastoma

Age	Sex		Total
	Male	Female	
3-9	1	1	2
10-19	5	1	6
20-29	4	3	7
30-39	7	2	9
40-49	10	9	19
50-59	12	6	18
60-80	42	16	58
Total	81	38	119

Table 2: Distribution of site of tumor by sex of 119 patients with Glioblastoma

Location	Sex		Total
	Male	Female	
Temporal	13	6	19
Parietal	17	8	25
Frontal	12	8	20
Midbrain	4	2	6
Occipital	3	3	6
Temporoietal	18	4	22
Temporooccipital	2	0	2
Parietofrontal	5	2	7
Parietooccipital	4	1	5
Unknown	4	4	8
Total	82	38	120

Table 3: Frequency of Glioblastoma symptoms

Symptoms	Frequency	Percent
Headache	94	78.3
Seizure	22	18.3
Nausea and Vomiting	30	25
Parestesia	23	19.4
Loss of consciousness	15	12.5
Visual disturbance	2	1.7
Vertigo	19	15.8
Equilibrium disorder	2	1.7

Headache was the most frequent symptoms in patients (78.3%), the other tumor manifestations were shown in Table 3.

DISCUSSION

GBM is the most common astrocytic malignant neoplasm, with hypercellularity, clear cellular anaplasia, necrosis, highly angiogenesis and poor prognosis whose treatment has 8 to 10 months survival (Rosenblum, 2004).

Total brain tumors, which were operated and diagnosed in Kerman province during ten years period 1994-2004, were estimated 773 cases. Total of average population of province in this time period was 2,004,328 (Anonymous, 2003). The incidence of brain tumors was estimated 38 per 100000 general population. The incidence of Glioblastoma multiforme was estimated 6 per 100000 general population and 8 cases per 1000 brain tumor cases. McLendon *et al.* (1985) calculated this ratio 8 case per 100000 general population.

In our study the sex ratio (Male:Female) was 2:1. It is the same as Shuanshoti and Panyathanya (1983). But the sex ratio was 1.04:1 in McLendon *et al.* (1985) finding. A slight male predominance had been observed in children (Dohrmann *et al.*, 1976).

GBM occurred in old adults and elderly. The more frequent age group in our findings was geriatrics (upper 60 years old). It was obtained by other studies (McLendon *et al.*, 1985), but it was in contrast with Shuanshoti and Panyathanya (1983) results. In that study age group under 20 was more frequent (Dohrmann *et al.*, 1976).

Hemispheres were the most common site of GBM. Present results showed the most number of tumors in parietal lobe. Parietal and frontal lobes were the most prevalent locations in other studies (Beatriz *et al.*, 2003; Rosenblum, 2004; Shuanshoti and Panyathanya, 1983 and Dohrmann, *et al.*, 1976).

Headache was the first and nausea and vomiting was the second prevalent symptoms in all studies (Shuanshoti and Panyathanya, 1983) and similar results are found in the present study.

Present findings like earlier studies determined that GBM are the frequent malignant brain tumors with male predominancy and occurrence during sixth and seventh decades of life. Hemispheres are the most prevalent location in brain and headache with nausea/vomiting is common.

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