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Epidemiology of Brain Tumors in Mangalore

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Abstract: ***Brain cancer accounts for approximately 1.4% of all cancers and 2.3% of all cancer-related deaths. The tumors are particularly deleterious in that they can interfere with the normal brain function. Although there has been a recent increase in the number of epidemiologic studies of brain cancer, little consensus exists regarding the nature and magnitude of the risk factors contributing to its development. In addition to the differences in methods and eligibility criteria used and in the representativeness of the patients studied, other confounding factors exist. These include the variable use of proxies to report information about case subjects; differences of control groups selected; substantial heterogeneity of primary brain tumors; inconsistencies in histologic diagnoses, definitions and groupings; and difficulties inherent in retrospective analyses. The aim is to find out the epidemiology of brain tumors in Mangalore.***

Keywords: Brain, Cancer, Diagnoses, Epidemiology, Histologic

1. Introduction

Brain cancer accounts for approximately 1.4% of all cancers and 2.3% of all cancer-related deaths. The tumors are particularly deleterious in that they can interfere with the normal brain function. Primary brain tumors do not spread to other body sites, and can be malignant or benign. Secondary brain tumors are always malignant. Both types are potentially disabling and life threatening[1].

The problem is that the brain is enclosed by cranium. In the cranium the brain covered by meninges lies in a cushion of CSF. The other component is the vascular system which provides the essential nutrients. There is a definite balance of all these components. If one component in the brain grows the other components have to be compromised as the cranium is a static structure. Invariably there is rise in intra cranial tension and then the plethora of symptoms follows.

The American Cancer Society estimated that 16,800 individuals would be diagnosed with malignant brain tumors in 1999 and that 13,100 of those individuals would die from their disease.

Although there has been a recent increase in the number of epidemiologic studies of brain cancer, little consensus exists regarding the nature and magnitude of the risk factors contributing to its development. In addition to the differences in methods and eligibility criteria used and in the representativeness of the patients studied, other confounding factors exist. These include the variable use of proxies to report information about case subjects; differences of control groups selected; substantial heterogeneity of primary brain tumors; inconsistencies in histologic diagnoses, definitions and groupings; and difficulties inherent in retrospective analyses.

There are a number of distinct types of brain cancers within the brain, and the treatments and their outcomes vary greatly based on pathologic and histologic diagnosis. More recently, researchers are identifying new therapies based on increased knowledge of cellular and molecular biology[2].

2. Aims and Objectives

1) To find out the incidence of different types of intracranial tumors in Mangalore population.
2) To find out the age distribution.
3) To find the gender distribution.
4) To find the site distribution.

3. Materials and Methods

The material used in this study was done in Tejaswini Hospital, Mangalore. The specimen were obtained from 38 cases of intracranial tumours, over a period of 2 years from May 2009 to May 2011.

Complete clinical history and clinical diagnosis were noted down in all the cases. All the specimens were from biopsy of operated tumours received in 10% formaline. They were processed by the routine paraffin embedding technique. All the tissue bits that were received were embedded, wherever necessary in multiple paraffin blocks and and sections from all these blocks were studied . Paraffin sections of 4 microns thickness were obtained from each block and stained with haematoxyline and eosine stain using standard procedures.Histochemical stains were performed wherever indicated.

4. Results

Table 1: Showing Incidence of intracranial tumours

Types of tumour	*No. of cases*	*Percentage*
Neuroepithelial tumours	12	31.6
Tumours of cranial nerves	4	10.5
Tumours of meninges	11	30.0
Lymphomas	1	2.6
Tumours of sellar region	1	2.6
Metastatic tumours	3	7.9
Pituitary gland tumors	6	15.8
Total	38	100

The most common of all tumors were those of the Neuroepithelial groups12 [31.6%]. Next in frequency were the tumours of meninges, which constituted 11 [30.0%] of

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all intracranial tumours. The pituitary gland tumorus were 3rd in frequency 6 [15.8%] followed by tumours of cranial nerves 4 [10.5%], metastatic tumour 3 [7.9%]. One lymphoma case and tumour of sellar region makes upto(2.6%) each.

Table 2: Age distribution of intracranial tumours

Type of tumour	*Age in years*		*Total*
	<14	>14	
Neuroepithelial tumour	1	11	12
Cranial nerve tumours		4	4
Meningeal tumours	1	10	11
Lymphomas		1	1
Tumours of sellar region		1	1
Metastatic tumours		3	3
Pituitary tumours		6	6

Table 3: Gender distribution of intracranial tumours

Type of tumour	*Gender*		*Total*
	Male	*Female*	
Neuroepithelial tumours	6	6	12
Cranial nerve tumours	1	3	4
Meningeal tumours	4	7	11
Lymphomas	1	0	1
Tumours of sellar region	1	0	1
Metastatic tumours	3	0	3
Pituitary tumours	4	2	6

Table 4: Showing site distribution of intracranial tumours

Site	*No of cases*	*% Of Cases*
Cerebrum	20	52.63
Meninges	7	10.53
Sellar	6	18.42
Cerebellum	3	7.89
CP angle	4	10.53
Total	38	100

5. Discussion

The work done consists of a clinicopathological study of 38 cases of intracranial neoplasms received in the department of pathology over a period of two years. The WHO classification is being followed to categories the tumours studies. Below 14 years of age tumours of neuroepithelial tissue and meningomas were common .Between 14 and 40 years, tumours of the Neuro epithelial tissues were the most common tumours followed by menigioma and pituitary adenomas. It was observed that intracranial tumours were more common among males 20 than in females 18, M:F ratio being 5:4.

Regarding the location the cerebrum was the favoured site for all intracranial tumours.

6. Conclusion

In this prospective clinicopathological study of 38 cases of intracranial tumours we arrived at the following conclusions:

- Cerebrum was the commonest site of intracranial tumours.
- Peak incidence of intracranial tumours were found in 3rd and 5th decades.
- There was a male predominance in Incidence of intracranial tumours.

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