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# Prevalence of various forms of malignant gliomas and their corresponding survival rates in Kashmir valley

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**ABSTRACT**

*The prognostic implications for glioma patients are still unknown with varied survival ranges in different forms of glioma. We evaluated approximately all the glioma patients between the year 2015 and 2019. We aim to study the percentage of different types of gliomas in our population. Out of all Glioblastoma were 70(29.2%), Oligodendroglioma and astrocytoma were 50 (20.8%), oligoastrocytoma and anaplastic oligodendroglioma were 25(10.4%) and 35(14.6%) respectively and meningiomas were the least of all (4.2%). Also the glioblastoma presented the least overall survival. Concluding thereby that the frequency of glioblastoma is very high among all the glioma subtypes in our region, also the overall survival was least for glioblastoma.*

## 1. Introduction

Malignant gliomas, which make up the majority of malignant brain tumours in people, offer a significant threat due to their friendly pattern and tissue infiltration 1. Researchers have learned a lot about the biology of these tumours in recent years, such as glioma oncogenesis, proliferation, and invasion 2. The total 5-year survival rate ranges, with 60 percent for biopsy + prudent waiting and 74 percent for early excision in low-grade gliomas 3,4. In our 5-year study in the Kashmir valley, the male to female ratio is 2:1, and among the most common brain tumours, malignant glioma accounts for 51.3 percent of all cases, with GBM being the most common. A higher incidence of glioma has been associated to a variety of ccupations 5,6 environmental carcinogens 7, and food, among other risk factors 8. Although genetic polymorphism variants may only confer a modest absolute cancer risk, whether taken singly or in combination, they may induce a metabolic imbalance that leads to cancer propensity 9. Around 5 out of every 105 people on the earth is diagnosed with malignant glioma. It can strike at any age, with the highest incidence occurring in the fifth and sixth decades. Despite tremendous advances in understanding the molecular pathological process, glioma remains one of the most common primary malignancies of the central nervous system 10.

According to the findings of a hospital-based observational study in our tertiary care hospital, Sher-I-Kashmir Institute of Medical Sciences (SKIMS), 200 to 300 glioma cases are registered in the department of Neurosurgery. These patients belong to varied demographic features like age, residence, occupation etc. Taking into consideration the strong aggressive natures of these tumors we started a cohort study in these patients to evaluate the frequency of the different types of gliomas.

## 2. Materials and Methods

The study was carried out at the Sher-i-Kashmir Institute of Medical Sciences' Advanced Centre for Human Genetics (ACHG) and Department of Neurosurgery (SKIMS). The records were checked retrospectively for all patients who had previously been diagnosed with glioma, and the research took place between 2015 and 2019. The patient's medical history was extensively examined, and each recruited subject gave a consent on a written format, and the study was authorised by the local Institutional Ethical Committee (SKIMS)

## 3. Results

We included 240 glioma patients from the Department of Neurosurgery of SKIMS hospital of Kashmir Valley. We focussed only on the nature and type of gliomas, wherein Glioblastoma were 70(29.2%), Oligodendroglioma and astrocytoma were 50 (20.8%), oligoastrocytoma and anaplastic oligodendroglioma were 25 (10.4%) and 35(14.6%) respectively and meningiomas were the least of all (4.2%). The overall survival rates were 0-6 months for glioblastoma, 30- 40 months for oligodendroglioma and anaplastic oligodendroglioma, 35- 45 months for astrocytoma and oligoastrocytoma and 5- 8 years for meningiomas (Table 1).

| Type of glioma | Frequency | OS (overall survival) |
|---|---|---|
| Glioblastoma | 70(29.2%) | 0-6 months |
| Oligodendroglioma | 50(20.8%) | 30- 40 months |
| Astrocytoma | 50(20.8%) | 35- 45 months |
| Oligoastrocytoma | 25(10.4%) | 35- 45 months |
| Anaplastic Oligodendroglioma | 35(14.6%) | 30- 40 months |
| Meningioma | 10(4.2%) | 5-8 years |

**Table 1: Frequency and overall survival of different types of glioma.**

## 4. Discussion

Accurate tumour classification is essential in modern neuro-oncology clinical practise. There is no variable that more accurately predicts prognosis, and clinicians use classification to make key therapy recommendations to their specific patients: For all patients with a certain tumour type, neuro-oncologists employ medicines in a reasonably uniform manner. As a result, histological diagnosis influences the therapy of brain tumours in a significant way. Furthermore, our scientific study of brain cancers is guided by classification, with biological understanding typically dependent on a priori assumptions about specific tumour kinds. As particular medicines based on various biological abnormalities within tumours grow more common, proper classification will become even more important in guiding these different treatments. In neuro-oncology, the importance of precise classification necessitates that serious attention be paid to the problem, as well as periodic re-evaluations of this vital issue.

Our study revealed that of all the 240 glioma patients, 29.2% (70) were glioblastoma while as oligodendroglioma, astrocytoma, oligoastrocytoma, anaplastic oligodendroglioma were 20.8% (50), 20.8% (50), 10.4%(25), 14.6%(35) respectively and meningiomas being the least frequent of all 4.2 % (10). Glioblastoma is the most prevalent central nervous system tumour, according to a number of studies [10,11]. According to Dhar et al (2010: data unpublished), over 2000 instances of brain tumours were treated in the Kashmir valley, according to this extensive examination, which was conducted with a male: female ratio of 1.47:1.The age group affected the most was 41-50 years old. The most common type of brain tumour being glioma, which accounts for 51.3 percent of all cases; the most common is glioblastoma multiforme, which accounts for 49.5 percent of cases.

We also analysed the overall survival rates of the subtypes of glioma with glioblastoma having the least overall survival among all and meningiomas having highest survival rates. Many studies are there insupport of this finding [12, 13, 14]

As the glioblastoma is the most hostile form of the glioma as compared to the other types so the patients with this malignancies survive very short life and the prognosis of these malignancies are also very low [14]. These facts will help the clinicians to manage the glioma patients in a smart way. In neuro-oncology, the importance of precise classification necessitates that serious attention be paid to the problem, as well as periodic re-evaluations of this vital issue.

## 5. Conclusion

We come to this conclusion that the frequency of glioblastoma is very high in our region as compared to the other types of glioma. Furthermore, the overall survival of glioblastoma is very low in comparison to other types with meningiomas having highest survival rates of all. A detailed effort is required to rule out elements such as molecular features as the cause of this finding.

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***Conflict of interest***

The authors claim no conflict of interest.

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