

## Awareness about Glioblastoma (Gbm)

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### Abstract

Glioblastoma or glioblastoma multiforme abbreviated as GBM is the most common and most aggressive type of glioma. Glioblastoma tumors arise from astrocytes (star shaped cell) that make glue like tissues of the brain. Astrocytomas are a type of cancer of the brain and GBM is grade four tumors & the most malignant form of astrocytoma. Our survey aimed to find out its awareness among the pharmacy undergraduates at Jinnah University for Women, Karachi, Pakistan. A random and cross-sectional method was to collect the data in the month of May-June, 2014. After our survey we have concluded that the awareness of glioblastoma multiforme is very less in pharmacy undergraduates. There were only 12% students who know about the glioblastoma multiforme. There were only 3% students who know about the treatment of glioblastoma multiforme, whereas only 2% pharmacy undergraduates who knows the types of glioblastoma multiforme, difference between primary and secondary type of glioblastoma multiforme and the causes of glioblastoma multiforme. This result shows that almost there is no awareness about the grade 4 tumor, glioblastoma multiforme.

**Keywords:** Glioblastoma multiforme, Aggressive, Glioma, Astrocytoma

### Introduction

Tumors which arise from the glial (from the Greek for “glue”), or supportive tissue, of the brain is called a “glioma.” Astrocytoma is one of the types of glioma. They are growing from astrocytes, the star-shaped cells. On the base of abnormality astrocytomas are graded. Glioblastoma or glioblastoma multiforme (“GBM”) is the highest grade glioma (grade IV) tumor, and the most malignant form of astrocytoma. In glioblastoma, there is presence of necrosis (dead cells) and increase of blood vessels near the tumor point. Grade IV tumor is rapidly growing and highly malignant tumors [1]. A series of mutations in GBM is to provide cells with selective growth advantages that promote survival and proliferation in a hostile and hypoxic environment [2]. GBM tumors are characterized pathologically by the presence of an aberrant vasculature comprised of glomeroid tufts and hyper proliferative, leaky and unorganized blood vessels [3]. Chemotherapy and radiation is used to slow the growth of tumor and chemotherapy also used to delay the need of radiation [4].

Types:

Glioblastoma has two types:

- 1) Primary: These tumors grow rapidly and hence show their presence too. This is the most common form of glioblastoma; it is very aggressive.
- 2) Secondary: These tumors grow slowly, but still are very aggressive. They begin in lower-grade but eventually become higher grade. This tumor found in younger people, age less than 45 and represent about 10% of glioblastomas [5].

### Treatment

The ionizing radiation (IR) and the chemotherapeutic agent temozolomide are the current standard of care is surgical resection. This treatment only provides GBM patients with a 12–14 month survival period post-diagnosis [6,7]. Despite aggressive surgical resection and chemotherapy, most of the GBM patients undergo recurrence of the tumor. At the primary site, 90% of GBM tumors have been shown to recur [3]. This tumor has highly infiltrative nature. An extensive region of hypoxia is present in GBM. This reduction in oxygen may limit the efficacy of IR [8]. Glioblastoma can be difficult to treat because some cell may respond well while others may not be affected. Therefore treatment plan for this tumor may combine several approaches. In first step, generally they relieve pressure on brain and remove tumor through surgery.

New techniques or chemotherapeutic drugs which has capacity to cross the blood brain barrier & enter the tumor are used because the normal chemotherapy is fail to treat tumors due to high hydrostatic pressure at that point. These obstacles would be diminished by placing dissolvable chemotherapy wafers in the tumor bed.

### Cause

Brain tumors cannot be prevented. The cause of these tumors and other types of brain tumors is unknown. In all the body cells, genes are the fundamental building blocks. Abnormalities in the genes of different chromosomes which may play a role in the development of tumors have identified by Scientists. However, what causes those abnormalities is still uncertain. Scientists are conducting occupational, environmental, familial and genetic research to identify common links among patients. Despite a great deal of research on environmental hazards, no direct causes have been found. The majority of brain tumors are not hereditary [1].

## Methodology

This is a survey based study on the awareness of glioblastoma (GBM). A cross-sectional and random method was used to collect data from department of pharmacy, Jinnah University for women, about the awareness of glioblastoma (GBM) in the month of May-June, 2014. A specially designed questionnaire was used for data collection. Data of 100 students (n=100) was collected from students of different professional years and analyzed. Different questions were asked for the subjects to collect the data to conclude the awareness rate

in university students about GBM. Questions were asked on the knowledge, treatment, types, difference between its grade 4 tumor primary and secondary glioblastoma, and the causes of GBM (Table 1).

## Data Analysis

We have statistically analyzed our data and used tables for the representation of our data collected.

		What is Glioblastoma	Treatment of (GBM)	Types of (GBM)	Difference b/w primary and secondary glioblastoma (GBM)	Causes of glioblastoma (GBM)
N	Valid	100	100	100	100	100
	Missing	0	0	0	0	0
Mean		.1200	.0300	.0200	.0200	.0200
Std. Error of Mean		.03266	.01714	.01407	.01407	.01407
Median		.0000	.0000	.0000	.0000	.0000
Mode		.00	.00	.00	.00	.00
Std. Deviation		.32660	.17145	.14071	.14071	.14071

**Table 1:** Statistics of participants for awareness of disease

## Result

After our survey on the awareness of GBM which is a Grade IV tumor, at JUW, Karachi, we found that only 12% of the pharmacy undergraduate Students have awareness and 88% of the pharmacy undergraduate Students have no awareness about glioblastoma (GBM).

## Discussion

The most common and most aggressive type of glioma is Glioblastoma. It is a kind of grade IV tumor. We have surveyed on the awareness of this tumor in the undergraduate students of pharmacy. For this purpose 100 undergraduate students of pharmacy were asked different questions. In our survey all the 100 N are valid and 0 is missing.

In our survey the first question was asked about GBM that "What is Glioblastoma?" to 100 students. 12 out of 100 pharmacy students have knowledge about GBM. While according to our survey majority of pharmacy undergraduates, 88 students out of 100, have no basic awareness about GBM. There were many students who heard this term Glioblastoma first ever time in their lives (Table 2)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	88	88.0	88.0	88.0
	Yes	12	12.0	12.0	100.0
	Total	100	100.0	100.0	

**Table 2:** What is Glioblastoma?

In our survey on awareness of Glioblastoma in undergraduate pharmacy students at JUW, Karachi, the second question was asked on the treatment of Glioblastoma. 3% pharmacy undergraduates in our survey was present who know about the treatment of Glioblastoma while the other 97% of the pharmacy undergraduates do not know about the treatment of Glioblastoma (Table 3).

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	97	97.0	97.0	97.0
	Yes	3	3.0	3.0	100.0
	Total	100	100.0	100.0	

**Table 3:** Treatment for GBM.

In our survey on awareness of Glioblastoma in undergraduate pharmacy students at JUW, Karachi, the third question was asked on the types of Glioblastoma. 2% pharmacy undergraduates in our survey was present who know about the types of Glioblastoma while the other 98% of the pharmacy undergraduates do not know about the types of Glioblastoma (Table 4).

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	98	98.0	98.0	98.0
	Yes	2	2.0	2.0	100.0
	Total	100	100.0	100.0	

**Table 4:** Types of GBM.

In our survey on awareness of Glioblastoma in undergraduate pharmacy students at JUW, Karachi, the fourth question was asked on the Difference b/w primary and secondary types of Glioblastoma. 2% pharmacy undergraduates in our survey was present who know about the Difference b/w primary and secondary types of Glioblastoma while the other 98% of the pharmacy undergraduates do not know about the Difference b/w primary and secondary types of Glioblastoma (Table 5).

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	98	98.0	98.0	98.0
	Yes	2	2.0	2.0	100.0
	Total	100	100.0	100.0	

**Table 5:** Difference between primary and secondary glioblastoma (GBM)

In our survey on awareness of Glioblastoma in undergraduate pharmacy students at JUW, Karachi, the last question was asked on the causes of Glioblastoma. 2% pharmacy undergraduates in our survey was present who know about the causes of Glioblastoma while the other 98% of the pharmacy undergraduates do not know about the causes of Glioblastoma (Table 6).

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	98	98.0	98.0	98.0
	Yes	2	2.0	2.0	100.0
	Total	100	100.0	100.0	

**Table 6:** Causes of glioblastoma(GBM)

The basic aim of this study is to check the awareness about this disease in pharmacy students because they are also related with health profession like doctors and by compiling all information regarding GBM in this paper is very useful for health care professionals. I and my research group have done this type of surveys and by reading this research article, students of MBBS or pharm D will be well aware of this disease [9-15].

## Conclusion

After our survey regarding the awareness of GBM, we find there is only negligible awareness in the pharmacy undergraduates of JUW,

Karachi about this disease. Only 12% pharmacy undergraduates were aware of this term, GBM.

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