



Glioblastoma in England 2007-2011

National Cancer Registration and Analysis Service data briefing

Introduction

Glioblastoma (GBM) is the most common and aggressive primary malignant brain tumour in adults. The Central Nervous System Site-Specific Clinical Reference Group (SSCRG) at the National Cancer Intelligence Network examined the incidence and survival of patients with GBM in England, by sex, age, geographical region and treatment modality.

Method

We linked population-based cancer registration data to Hospital Episode Statistics (HES) data, allowing the first ever national analysis of treatment records for GBM patients, particularly for surgery and chemotherapy.

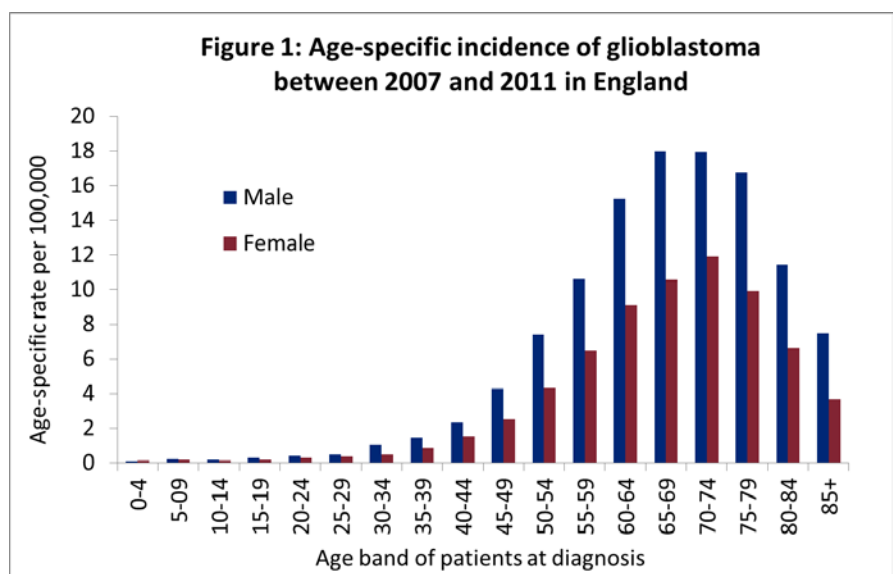
Results

There were 10,743 patients diagnosed with GBM in England between 2007 and 2011. The age-specific incidence rate peaked between ages 65 to 74 with 60% of all cases diagnosed in men (Figure 1). The one-, two- and five-year overall survival rates were 28.4%, 11.5% and 3.4% respectively.

The England GBM age-standardised incidence rate is the highest reported rate in the world (at 4.6 per 100,000 people). Rather than indicating a genuine difference in diagnosis rates, this may partly reflect international differences in registration practices.

Key messages

- Almost 2,200 people are diagnosed with glioblastoma each year in England.
- Median survival was 6.1 months with significantly poorer outcomes for older people aged 70+.
- Maximal combination treatment was associated with improved prognosis for all age groups, but older people aged 60+ were less likely to receive this treatment.



Basis of diagnosis

More than 90% of GBM diagnoses in patients under 70 were based on histological confirmation, dropping to less than 60% for patients 70+.

Site of tumour

GBM commonly occurs in the frontal (24.9%) or temporal lobes (21.8%) (Table 1). Median survival varies from 8 months for temporal or occipital lobe diagnoses, to 4 months in the cerebellum or unspecified location.

Table 1: location, survival and incidence of GBM, listed by decreasing median survival

Tumour site	Median survival (months)	Incidence distribution %
Temporal lobe	8.2	21.8
Occipital lobe	8.1	4.8
Frontal lobe	7.1	24.9
Parietal lobe	6.6	16.7
Cerebellum	4.0	0.5
Unspecified	3.8	30.9
All sites	6.1	100.0*

*sum of rows may not equal 100% exactly due to rounding

Median survival by age

Increasing age had a substantial impact on survival outcomes (Figure 2), though the types of GBM diagnosed varied by age. Median survival was highest for 20 to 44 year olds at 16.2 months. For 45 to 69 year olds it was 7.9 months. For older people aged 70+, median survival was just 3.2 months.

Median survival by treatment modality

Patients who received maximal treatment, so debulking surgery, chemotherapy, and probable radiotherapy, had the highest median survival, of 14.8 months.

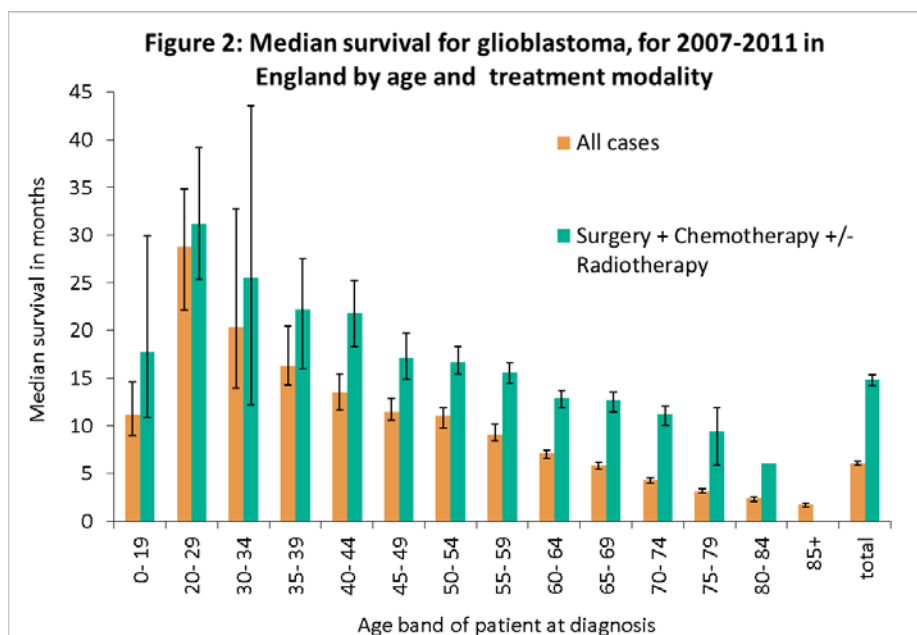
GBM patients undergoing just chemotherapy treatment had an associated median survival of 10.1 months.

For patients having only debulking surgery, without chemotherapy, there was an associated median survival of 5.2 months.

Patients who did not undergo surgery or chemotherapy were shown to have a median survival of 3 months.

Conclusion

Aggressive, maximal treatment interventions are associated with median survival times for GBM patients that are equivalent to those reported in phase III randomised clinical trials.



The elderly can do well with aggressive treatment, but they are less likely to receive it. More investigation is needed to inform us whether these clinical decisions are based on patients' poor performance status, co-morbidities and complex needs, or whether older people are not being offered maximal treatment due to their age alone.

Despite a poor overall survival rate for Glioblastoma, there are a small proportion of patients living at least five years after their diagnosis.

Our peer-reviewed publication in the European Journal of Cancer is available via open access [here](#).

Find out more:

The Public Health England National Cancer Registration and Analysis Service delivers a world-class cancer registration service for England and undertakes analyses to drive improvements in prevention, standards of care and clinical outcomes for cancer patients.

Other useful resources from NCRAS:

What cancer statistics are available and where can I find them?

<http://www.ncin.org.uk/publications/reports/>

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