

Astrocytic brain tumours: survival rates in England

NCIN Data Briefing

Tumour details

Astrocytic tumours are the commonest type of cancer of the brain. They originate in a particular kind of glial cells, star-shaped brain cells in the cerebrum called astrocytes. This type of tumor does not usually spread outside the brain and spinal cord and it does not usually affect other organs. Astrocytomas can occur in most parts of the brain .

Astrocytic tumours include a range of histological types* and malignancy grades. The least aggressive WHO grade I tumours are Pilocytic Astrocytomas and Subependymal Giant Cell Astrocytomas. The WHO grade II tumours include Piloxyoid Astrocytoma, Pleomorphic Xanthoastrocytoma, as well as the Diffuse Astrocytomas, which include the following subtypes - Fibrillary, Gemistocytic and Protoplasmic. Anaplastic Astrocytomas are more aggressive and are WHO grade III. The most aggressive Astrocytic tumour is Glioblastoma, which is WHO grade IV.

It is difficult to estimate incidence of specific types of Astrocytic tumours due to variable precision in the historic registration and coding of brain and CNS tumour types, but Astrocytomas make up over 80% of brain tumours and around 75% of Astrocytomas are highly aggressive Glioblastomas. Astrocytomas can be diagnosed at any age, but the WHO grade I types are more often found in children or young adults, while the WHO grade III and IV types are more prevalent in adults.

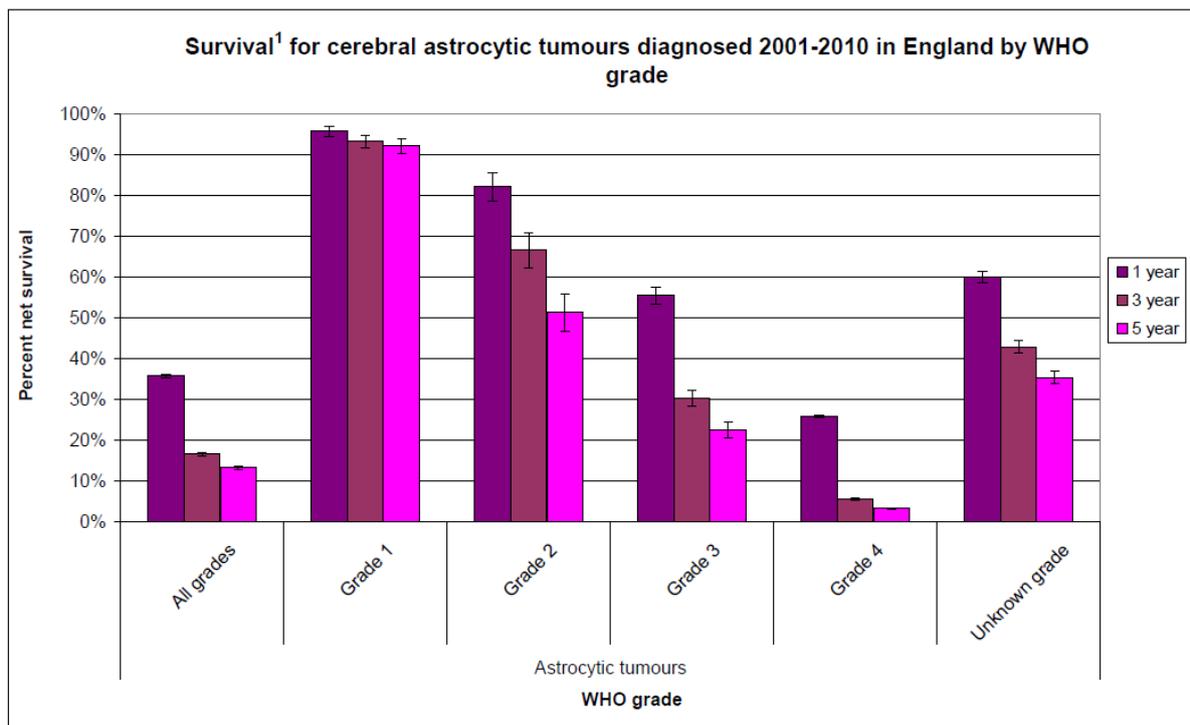
Survival rates

One-, three- and five- year net survival rates (1, 2) were estimated for all cerebral astrocytic tumours diagnosed in residents of England between 2001 and 2010. Net survival is an estimate of how survival is affected only by the disease of interest, based on the probability of survival of a person with cancer when compared with people of the same age and sex in the whole population of England.

The prognosis for cerebral astrocytic tumours is highly dependent on their grade, with survival being extremely poor for WHO grade IV Glioblastomas. However, long term survival for WHO grade 1 tumours is very much better and probably around 90% of these tumours are effectively cured by surgery.

KEY MESSAGES:

- Astrocytic tumours are the commonest type of cancer of the brain
- Astrocytic tumours are a diverse group including a range of histological subtypes and malignancy grades. Survival is highly dependent on tumour grade



Cancer registries have historically not managed to record a grade for all Astrocytic tumours. The survival for these ‘ungraded’ tumours is intermediate, although this group is likely to be heterogeneous.

It should be noted that the survival figures here do not include any measure of the disability and/or loss of quality of life which may be associated with brain tumours. Survival estimates may differ to those presented in other sources. This may be due to different populations, methods used or time periods of diagnosis studied.

References

1. Maja Pohar Perme, Janez J Stare, and Jacques J Estève; On estimation in relative survival; *Biometrics* 68(1):113-20 (2012), PMID 21689081
2. Estimating and modelling relative survival using Stata; Paul Dickman, Enzo Coviello, and Michael Hills; http://www.pauldickman.com/rsmodel/stata_colon/

*Histological type is the type of tumour observed by detailed microscopic examination of tumour cells.

The National Cancer Intelligence Network (NCIN) is a UK-wide partnership operated by Public Health England. The NCIN coordinates and develops analysis and intelligence to drive improvements in prevention, standards of cancer care and clinical outcomes for cancer patients.