

TRENDS IN BRAIN TUMORS

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Groups of Americans are being tracked and followed over years without necessarily knowing about it. They are described regularly in national journals - not the kind sold in grocery store check-out lanes however. Who does this work? It is generally the product of epidemiologists.

Epidemiologists are scientists who track trends in diseases. These epidemiologic studies for health matters are called SEER which stands for Surveillance Epidemiology and End Results program. The areas in the United States covered by this program are widely dispersed including the states of Iowa, Utah, New Mexico, Hawaii and Connecticut as well as the cities of Seattle, San Francisco, Detroit and Atlanta. This program commenced in 1973. Recently data was reported covering its first fifteen years for a variety of malignancies.

In this decade and a half study, more than 1.2 million cancers were registered in the residents of SEER area.

A sub-type analysis of brain tumors was performed by Polednak and Flannery. This was published in the journal Cancer in early 1995.

Included were brain tumors diagnosed by pathologic evaluation (meaning by biopsy or surgery) and also those diagnosed only radiographically (by the use of x-rays such as CT scan or non x-ray methods such as MRI).

The number of cases diagnosed only radiographically increased with increasing age. This means no biopsy or surgery was undertaken for diagnostic or therapeutic reasons. Only about 9% of patients younger than 55 years had radiographic-only diagnosis compared to 34% of those aged 75 to 84 years. Fifty-nine percent of patients aged 85 years and older had no pathologic confirmation of their tumor.

Of the 15,462 brain tumors diagnosed, the majority were astrocytomas and glioblastomas pathologically. These two categories alone comprised more than 11,500 tumors. Both types are primary brain tumors meaning they commence in the brain and usually remain there. Metastases or spread outside the brain is very unusual. Less commonly diagnosed were gliomas, ependymomas, oligodendrogliomas, medulloblastomas, esthesioneuroblastomas and malignant meningiomas.

There were, for example, 301 malignant meningiomas (or 1.9% of the total group). The incidence of glioblastomas was 2.4 cases per 100,000 in the white population between the years 1973-1977. This was nearly twice the incidence as in the black population with 1.3 cases per 100,000.

Glioblastoma multiforme are highly aggressive, malignant tumors that arise within the brain. By 1983, the incidence of glioblastomas in whites was 2.1 cases per 100,000 and in blacks, 0.9 cases per 100,000.

Astrocytomas which also arise within the brain can be less aggressive in growth than glioblastomas. Astrocytomas were less frequent in the early years of the study occurring in 1.5 cases per 100,000 in the white population but then rose to 2.2 cases per 100,000 in 1983 to 1987. Throughout those years, blacks had lesser incidence numbering 0.8 per 100,000 in the early years and 1.4 per 100,000 in the later years. Astrocytomas numbered 2.2 cases per 100,000 in the later years.

For purposes of comparison, malignant meningiomas numbered 0.1 cases per 100,000 and ependymomas 0.1 cases per 100,000. It should be noted that most meningiomas are benign. Benign tumors were not evaluated.

The authors noted that "the increases in age-adjusted rates over time were greatest for astrocytomas and glioblastomas." Of course, several theories were proposed by others for this apparent increase in brain tumors. The non-confirmed hypotheses include the use of cellular phone and drinking diet sodas.

The authors commented on the rise in incidence of brain tumors in the elderly noting, "The explanation for secular or long-term increases in incidents rates for primary brain tumors in the elderly is controversial, with some investigators suggesting largely (or entirely) artifactual increases due to improvement in detection and medical care of the elderly, but others suggesting that some of the increases may be real. The significant of lower age-adjusted incidence rates in blacks compared with whites for astrocytoma and glioblastoma could reflect (at least in part) lower rates of detection due to less access of lower social economic status groups to diagnostic radiologic tests."

This type of data analysis helps communities evaluate potential local risk factors. It also allows physicians and other investigators to compare various treatment modalities in an attempt to find the most efficacious medical care. Ongoing medical research as well as that of the epidemiologic categories should allow patients and their families to compare treatment outcomes to help select the most desirable medical treatment in each specific instance.

New treatment options, while perhaps confusing at first to evaluate, should offer hope and, it is believed, significant progress for those with brain tumors.

Our physicians at Radiosurgery New York developed several unique programs for people with primary and recurrent brain tumors. Fractionated stereotactic radiosurgery may offer the advantages of more precise treatment to hit the tumor and avoid harm to healthy tissues. Also, unique combinations of chemotherapy and hypofractionated stereotactic radiosurgery offer appeal and apparent improved survival by taking into account the radiation enhancing effects of Taxol when given intravenously. This information and more is available through our offices at Radiosurgery New York.