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# Demographic variations and time to initiation of adjunct treatment following surgical resection of anaplastic astrocytoma in the United States: a National Cancer Database analysis

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## Abstract

**Background and aims:** The aim of this study was to analyze the trends, demographic differences in the type and time to initiation (TTI) of adjunct treatment AT following surgery for anaplastic astrocytoma (AA).

**Material and methods:** The National Cancer Database (NCDB) was queried for patients diagnosed with AA from 2004 to 2016. Cox proportional hazards and modeling was used to determine factors influencing survival, including the impact of time to initiation (TTI) of adjuvant therapy.

**Results:** Overall, 5890 patients were identified from the database. The use of combined RT + CT temporally increased from 66.3% (2004-2007) to 79% (2014-2016),  $p < 0001$ . Patients more likely to receive no treatment following surgical resection included elderly ( $> 60$  years old), hispanic patients, those with either no or government insurance, those living  $> 20$  miles from the cancer facility, those treated at low volume centers ( $< 2$  cases/year). AT was received following surgical resection within 0-4 weeks, 4.1-8 weeks, and  $> 8$  weeks in 41%, 48%, and 3%, respectively. Compared to patients who received RT + CT, patients were likely to receive RT only as AT either at 4-8 weeks or  $> 8$  weeks after the surgical procedure. Patients who received AT within 0-4 weeks had the 3-year OS of 46% compared to 56.7% for patients who received treatment at 4.1-8 weeks.

**Conclusion:** We found significant variation in the type and timing of adjunct treatment following surgical resection of AA in the United States. A considerable number of patients (15%) received no AT

following surgery.

**Keywords:** Adjuvant treatment; Anaplastic astrocytoma; Demographic variables; National Cancer Database (NCDB); Time to initiate adjuvant therapy.

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