

Retrospective Analysis of Pediatric Brain Tumors with Focus on Low Grade Glioma at Children's Hospital of New Orleans: 1994-2013

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Background and Rationale

- During the past decades, the national incidence of pediatric brain tumor (PBT) continues to increase.
- The reasons for this trend are still not well understood.
- We retrospectively reviewed the incidence and outcome of PBT diagnosed and treated at Children's Hospital of New Orleans during 1994-2013.
- We focused on low grade glioma (LGG) due to its increased incidence in pediatric population.
- Demographic information including histopathology, age at diagnosis, location of the tumor, treatment, and outcome will help us determine how our findings and results compare with national data, Surveillance Epidemiology, and End Results (SEER) using 1975-1995 and Children's Oncology Group (COG).

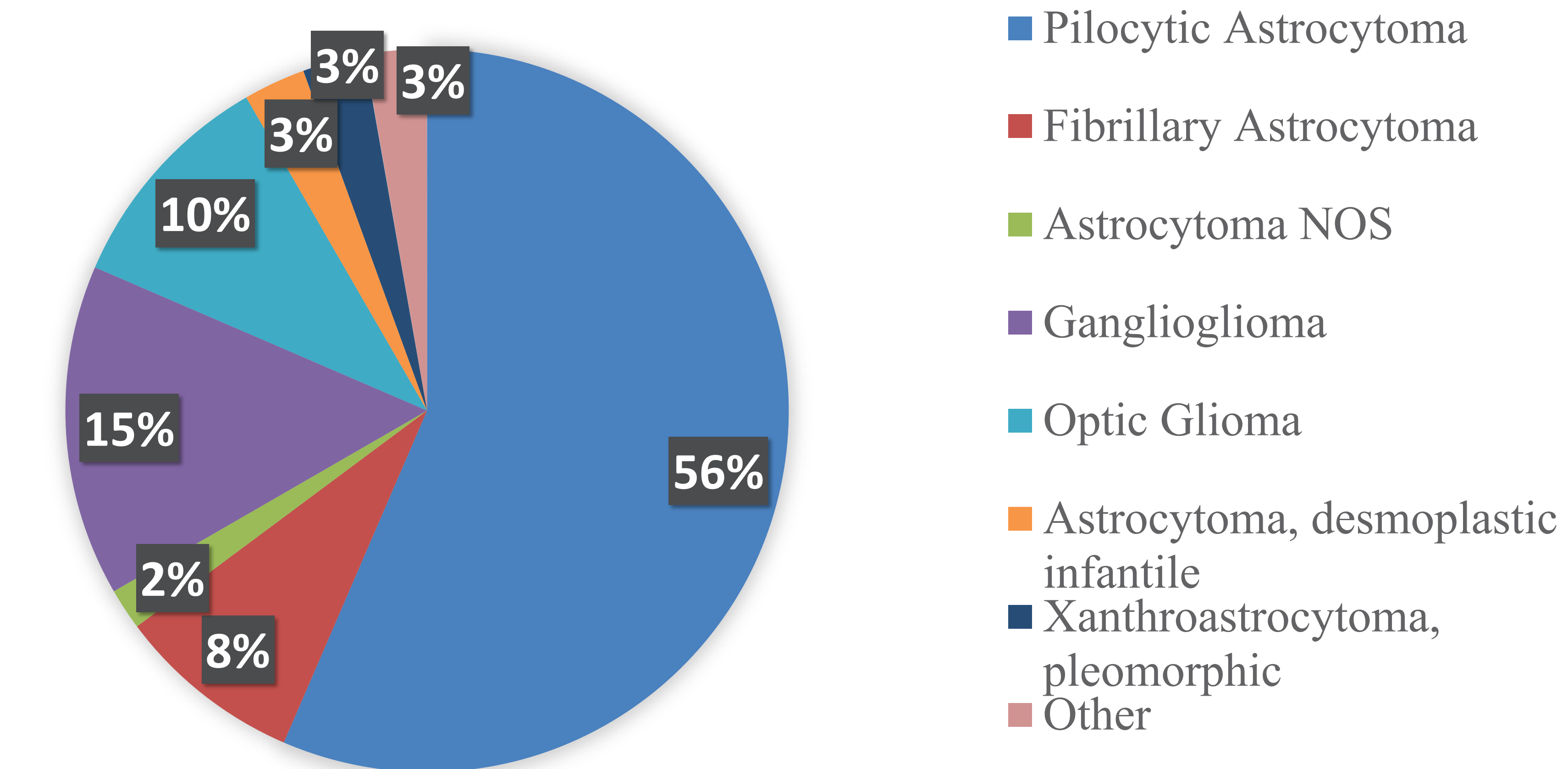
Demographics of Patients with LGG at Children's Hospital of New Orleans (CHNOLA)

Patient Demographics		PA	G	OG	FA	Other	All
Sex	Female	34 (56%)	4 (25%)	5 (45%)	5 (56%)	3 (27%)	51 (47%)
	Male	27 (44%)	12 (75%)	6 (55%)	4 (44%)	8 (73%)	57 (53%)
Race	Caucasian	40 (66%)	11 (69%)	9 (82%)	3 (33%)	4 (36%)	67 (62%)
	African American	17 (28%)	5 (31%)	2 (18%)	5 (56%)	6 (55%)	35 (32%)
	Other	4 (6%)	0 (0%)	0 (0%)	1 (11%)	1 (9%)	6 (6%)
Age at dx	0-10 years	45 (74%)	8 (50%)	11 (100%)	5 (56%)	6 (55%)	75 (69%)
	>10 years	16 (26%)	8 (50%)	0 (0%)	4 (44%)	5 (45%)	33 (31%)

PA: Pilocytic Astrocytoma, G: Ganglioglioma, OG: Optic Glioma, FA: Fibrillary Astrocytoma

Figures and Tables

Figure 1: Distribution of Low Grade Glioma



- LGG are the most common PBT found in our patient population
- Tumor Location: 52% posterior fossae, 38% supratentorial, 10% optic glioma
- Figure 1 shows distribution of LGG

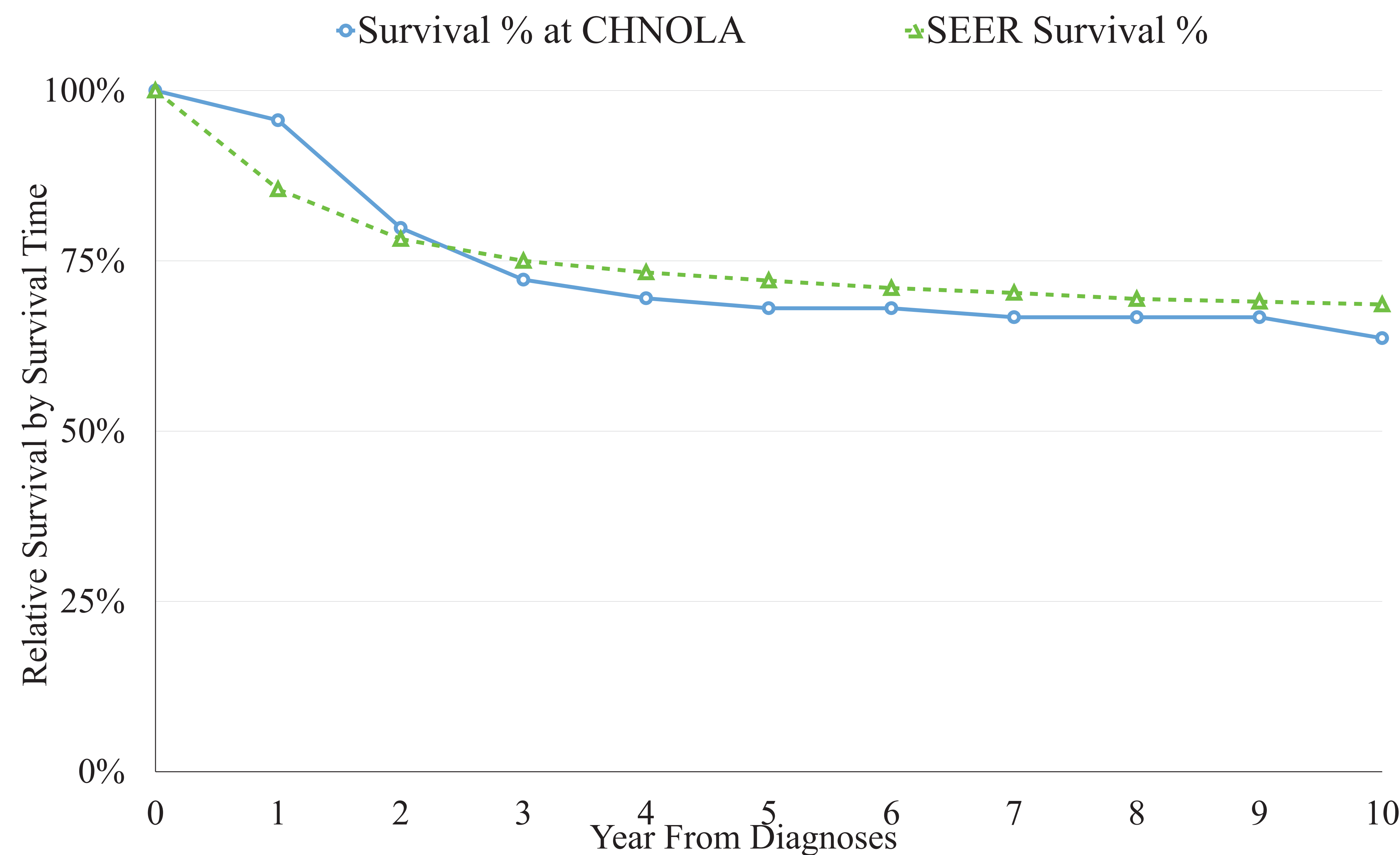


Figure 2: Total PBT Survival % at CHNOLA and SEER data

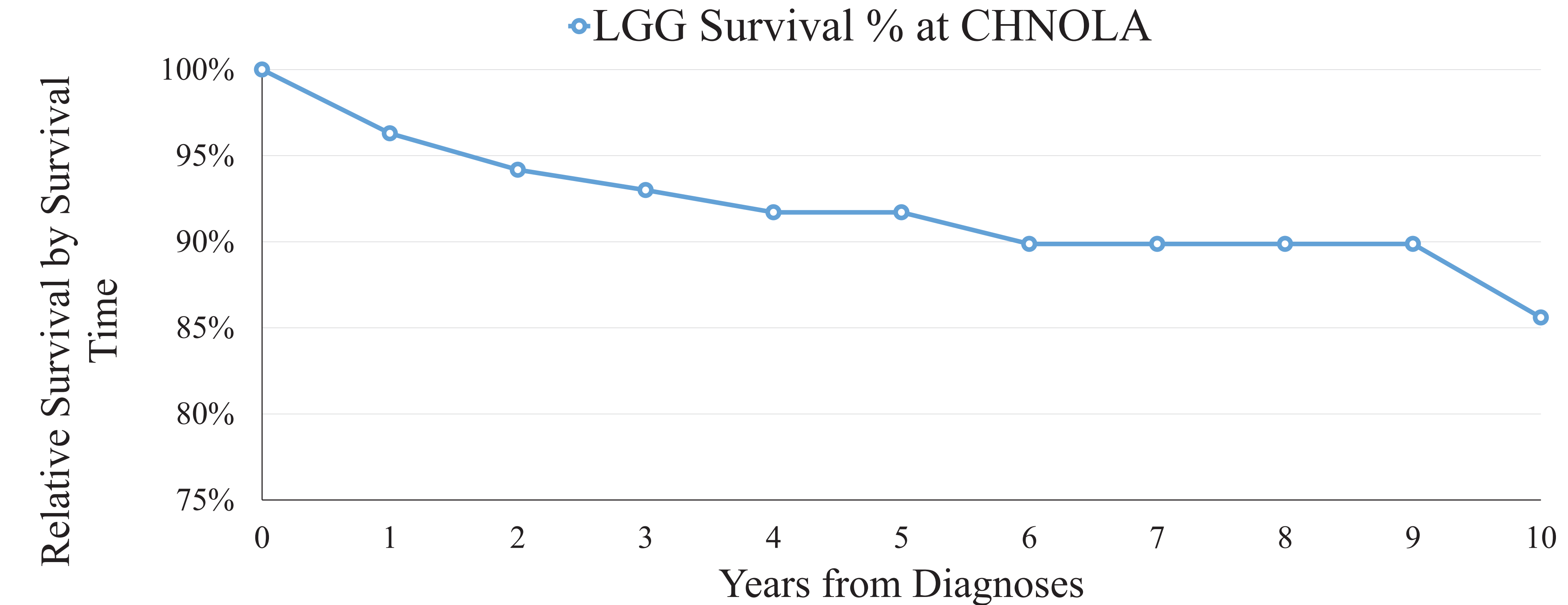


Figure 3: LGG Survival % at CHNOLA

Results

- The overall survival (OS) of LGG patients for the study period is 90%; OS from 1994-2003 is 82% while the OS from 2004-2013 is 94%.
- Treatment: 52% of LGG patients received a gross total resection (GTR) with 98% survival; 30% received chemotherapy with 67% survival; 11% received radiation with 55% survival.
- When GTR could not be accomplished, survival with other treatment modalities, including partial resection, biopsy, chemotherapy, radiation therapy, observation, or any combination of these was 69%.
- Among those who died, the characteristics included: fibrillary histology(56%), African-American(55%), and biopsy only(82%)

Conclusions

- Improved OS in the second decade of the study period could be a result of better neurosurgical techniques, new chemotherapy regimens, and novel radiation modalities.
- Increase in LGG cases in the second decade could be due to imaging developments and earlier detection from recognizing symptoms with the use of the internet by parents in our era of technology.
- GTR is shown to be the best indicator for survival. When this is not possible and other treatment modalities are needed, survival decreases. This result could be due to tumor locations that are not feasible for resection, recurrence of tumor, or more aggressive histology.
- When compared with national data (SEER and COG), our survival rates are at the national average for PBT and LGG.

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