Munich Cancer Registry

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ICD-10 C71: Astrocytoma I-III

Survival

Year of diagnosis	1988-1997	1998-2020
Patients	106	935
Diseases	106	935
Cases evaluated	103	862

Creation date	04/15/2022
Database export	12/20/2021
Population	4.92 m

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https://www.tumorregister-muenchen.de/en

https://www.tumorregister-muenchen.de/en/facts/surv/sC71A_E-ICD-10-C71-Astrocytoma-I-III-survival.pdf

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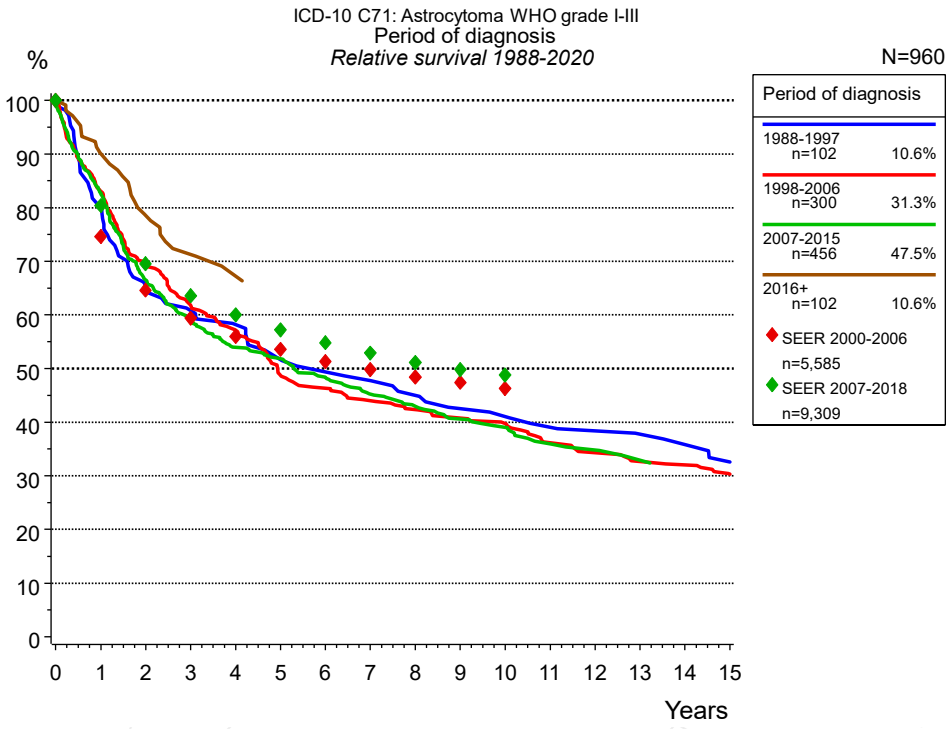

Figure 1a. Relative survival of patients with astrocytoma I-III by period of diagnosis. Included in the evaluation are 960 cases diagnosed between 1988 and 2020.

The survival results of the SEER program (Surveillance, Epidemiology, and End Results) of the American National Cancer Institute (NCI) are summarized as the period of diagnosis from 2000 to 2018, and are represented by colored diamonds in order to facilitate comparisons between MCR and SEER.

The presented survival curves are derived from clinical records with valid follow-up informations, which means that death certificate cases (DCO) cases are omitted from the analysis. With this one restriction, the MCR has provided population-based statistics since 1998, collecting data on all cancer cases in the region of southern Bavaria. Historical data of previous time periods can be heavily selected, therefore, univariate survival comparisons of the presented time periods must be carefully considered. Nonetheless, all calculable survival curves are depicted to facilitate the comparison of long time follow-up analyses of relative survival between particular cancers.

	Period of diagnosis							
	1988-1997 n=102		1998-2006 n=300		2007-2015 n=456		2016+ n=102	
Years	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1	80.4	80.1	82.5	83.1	82.1	82.7	89.8	90.1
2	65.4	65.3	69.1	69.8	65.7	66.5	78.1	78.5
3	60.4	60.8	60.8	61.8	58.1	58.9	71.6	71.2
4	57.4	58.2	56.0	57.1	52.9	54.0	68.1	67.2
5	51.3	51.6	47.6	48.7	50.6	51.8		
6	48.3	49.4	45.2	46.3	47.0	48.4		
7	47.3	47.8	42.8	44.0	43.8	45.3		
8	44.2	45.0	41.0	42.3	41.5	42.9		
9	41.2	42.5	39.3	40.8	38.9	40.6		
10	40.1	41.1	38.2	39.7	37.4	39.0		
11	37.9	39.0	34.5	36.2	34.5	36.0		
12	36.8	38.4	32.7	34.3	33.3	34.8		
13	35.7	37.8	30.8	32.7	31.6	32.9		
14	34.5	35.8	30.1	32.0				
15	31.1	32.6	28.2	30.3				
Median	5.4		4.8		5.1			

Table 1b. Observed (obs.) and relative (rel.) survival of patients with astrocytoma I-III by period of diagnosis for period 1988-2020 (N=960).

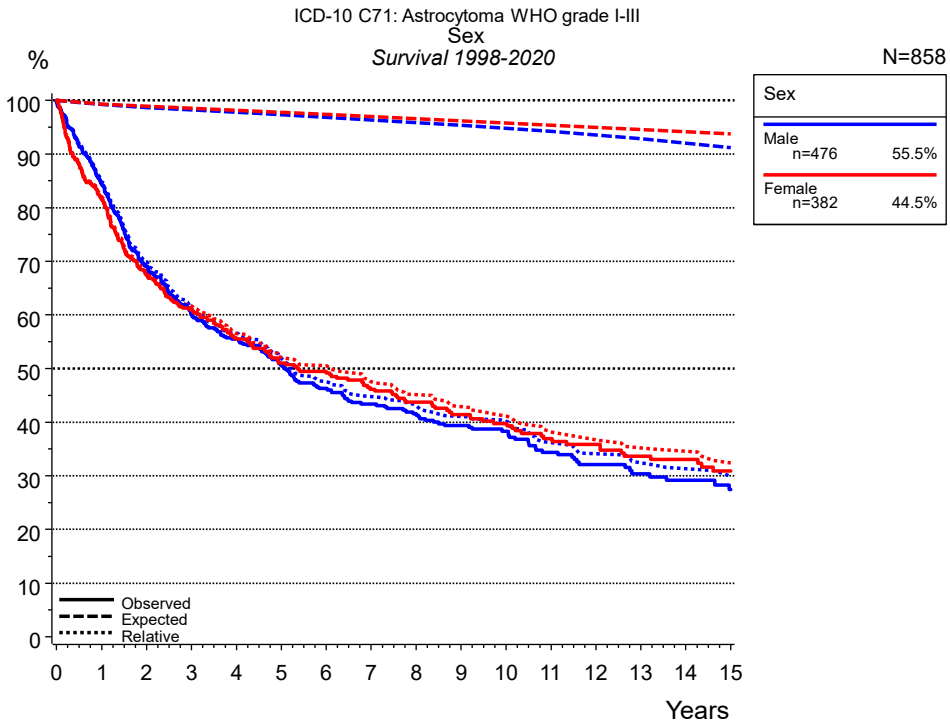

Figure 2a. Survival of patients with astrocytoma I-III by sex. Included in the evaluation are 858 cases diagnosed between 1998 and 2020.

	Sex			
	Male n=476		Female n=382	
Years	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0
1	84.2	84.9	81.7	82.1
2	69.1	69.9	67.4	68.0
3	60.1	61.1	61.0	61.7
4	55.5	56.6	55.5	56.6
5	50.6	51.9	51.0	52.1
6	46.3	47.6	49.2	50.5
7	43.4	44.8	46.2	47.6
8	41.6	43.1	43.7	45.2
9	39.4	41.1	41.4	42.9
10	38.3	40.2	39.8	41.1
11	34.4	36.2	36.9	38.2
12	32.1	34.1	35.8	36.8
13	30.4	32.4	33.7	35.2
14	29.2	31.3	33.1	34.6
15	27.4	29.8	30.9	32.4
Median	5.1		5.4	

Table 2b. Observed (obs.) and relative (rel.) survival of patients with astrocytoma I-III by sex for period 1998-2020 (N=858).

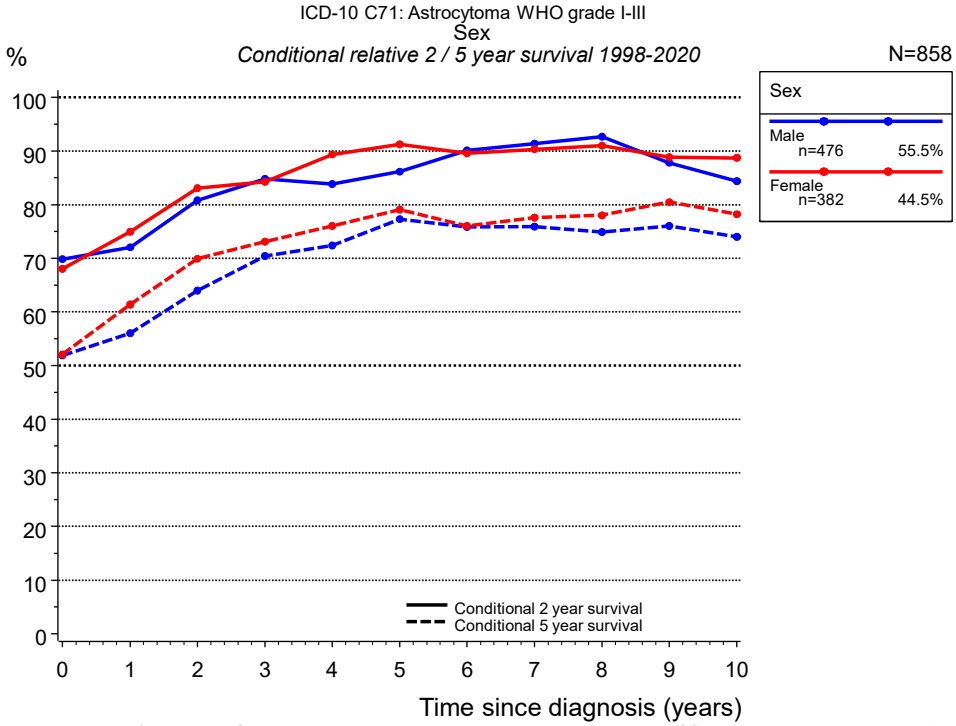

Figure 2c. Conditional relative 2 / 5-year survival of patients with astrocytoma I-III by sex. For 858 of 858 cases diagnosed between 1998 and 2020 valid data could be obtained for this item.

	Sex					
	Male			Female		
		Cond. surv. %			Cond. surv. %	
Years	n	2 yrs	5 yrs	n	2 yrs	5 yrs
0	476	69.9	51.9	382	68.0	52.1
1	389	72.1	56.1	303	75.0	61.4
2	311	80.8	64.0	243	83.1	69.9
3	263	84.8	70.4	217	84.3	73.1
4	234	83.8	72.4	189	89.4	76.0
5	203	86.1	77.3	169	91.2	79.1
6	176	90.1	75.9	154	89.6	76.0
7	155	91.3	75.9	136	90.3	77.6
8	134	92.7	74.9	118	91.0	78.1
9	120	87.8	76.0	104	88.9	80.4
10	102	84.4	74.0	90	88.7	78.2

Table 2d. Conditional relative 2 / 5-year survival of patients with astrocytoma I-III by sex for period 1998-2020 (N=858).

Conditional relative survival rates refer to the relative survival probability, in this case for 2 and 5 years after cancer diagnosis, compared to the age- and sex-matched population (=100 %) under the condition of being alive for a certain time period (x-axis in Figure 2a). The results illustrate to what extent the cancer induced mortality of particular subgroups declines in the subsequent years after detection of the malignancy. For instance, according to the presented survival statistics, patients in the subgroup sex=“Male”, who are alive at least 3 years after cancer diagnosis, the conditional relative 2-year survival rate is 84.8% (n=263).

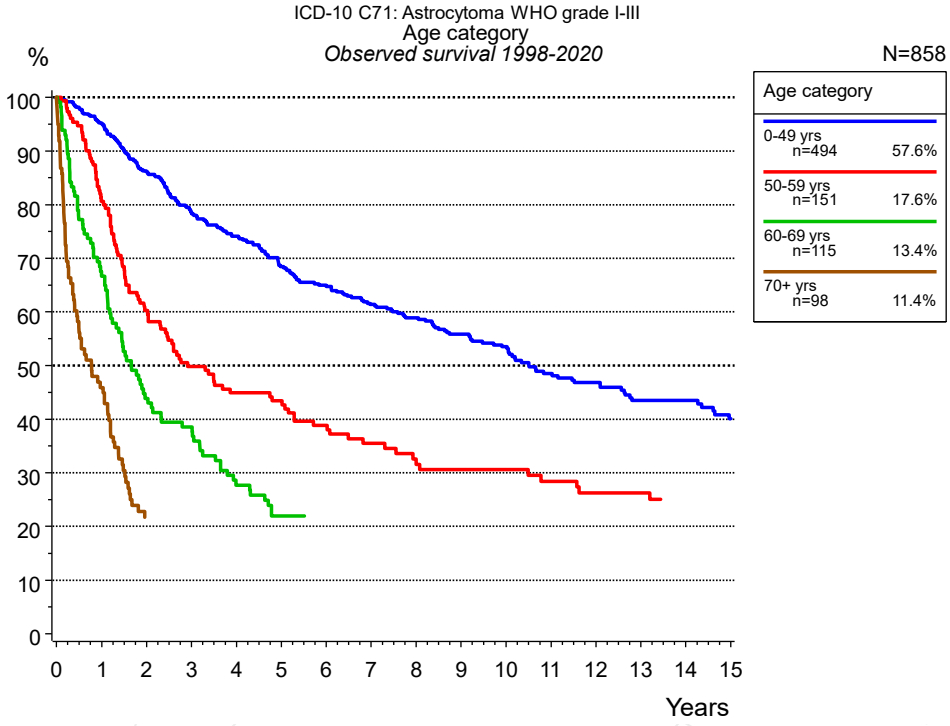

Figure 3a. Observed survival of patients with astrocytoma I-III by age category. Included in the evaluation are 858 cases diagnosed between 1998 and 2020.

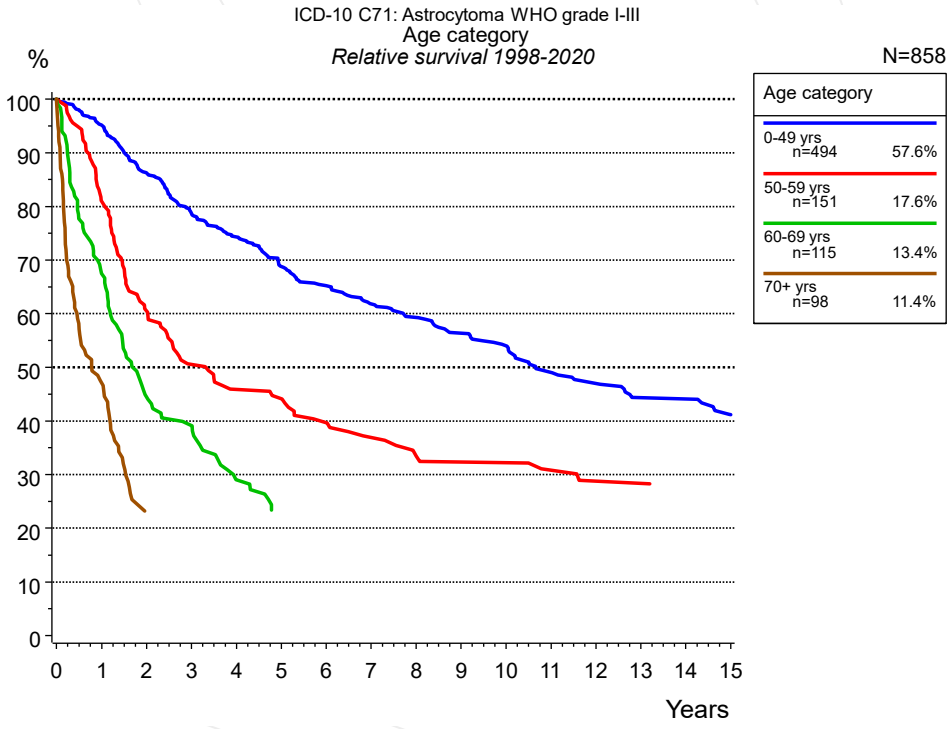

Figure 3b. Relative survival of patients with astrocytoma I-III by age category. Included in the evaluation are 858 cases diagnosed between 1998 and 2020.

	Age category							
	0-49 yrs n=494		50-59 yrs n=151		60-69 yrs n=115		70+ yrs n=98	
Years	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1	95.0	95.1	80.7	81.1	67.5	67.6	45.9	47.2
2	86.1	86.2	60.2	60.5	43.9	44.4	21.7	22.8
3	78.4	78.6	49.8	50.5	38.6	39.1		
4	74.1	74.3	44.9	45.9	27.7	29.0		
5	68.4	68.8	43.4	44.1	22.0	23.3		
6	64.7	65.2	38.9	39.7	22.0	23.0		
7	61.4	61.9	35.5	36.9				
8	58.9	59.3	32.6	33.5				
9	55.8	56.4	30.6	32.3				
10	53.5	54.0	30.6	32.2				
11	48.5	49.0	28.4	30.8				
12	46.9	47.0	26.3	28.8				
13	43.5	44.4	26.3	28.3				
14	43.5	44.1						
15	40.1	41.1						
Median	10.5		2.9		1.7		0.8	

Table 3c. Observed (obs.) and relative (rel.) survival of patients with astrocytoma I-III by age category for period 1998-2020 (N=858).

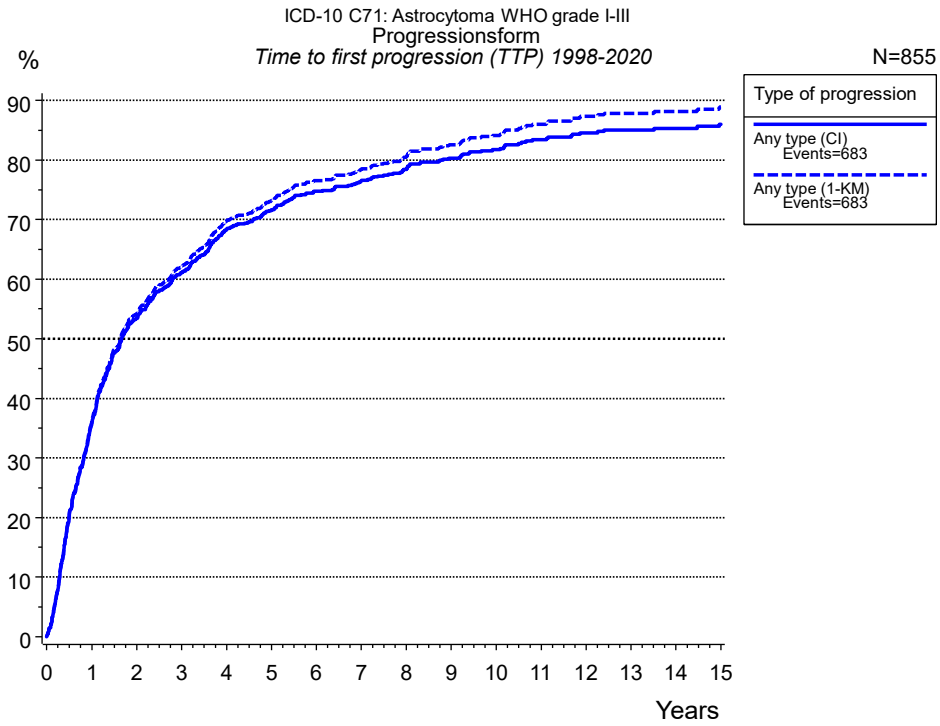

Figure 5a. Time to first progression of 855 patients with astrocytoma I-III diagnosed between 1998 and 2020 (in solid cancers M0 only) estimated by cumulative incidence function (CI, solid line) accounting for death as competing risk and by inverse Kaplan-Meier estimate (1-KM, dashed line). The frequency of events may be underestimated due to underreporting.

	Type of progression	
	Any type (CI)	Any type (1-KM)
N	855	855
Events	681	681
compet.	33	
Years	%	%
0	0.0	0.0
1	35.5	35.8
2	53.4	54.1
3	61.1	62.2
4	68.2	69.6
5	71.6	73.2
6	74.7	76.5
7	76.4	78.4
8	78.4	80.5
9	80.3	82.6
10	81.7	84.1
11	83.4	86.0
12	84.5	87.3
13	85.0	87.8
14	85.3	88.1
15	86.0	88.9

Table 5b. Time to first progression of patients with astrocytoma I-III for period 1998-2020 (N=855), also showing the total of progression events (Events) and of deaths as competing risk (compet.).

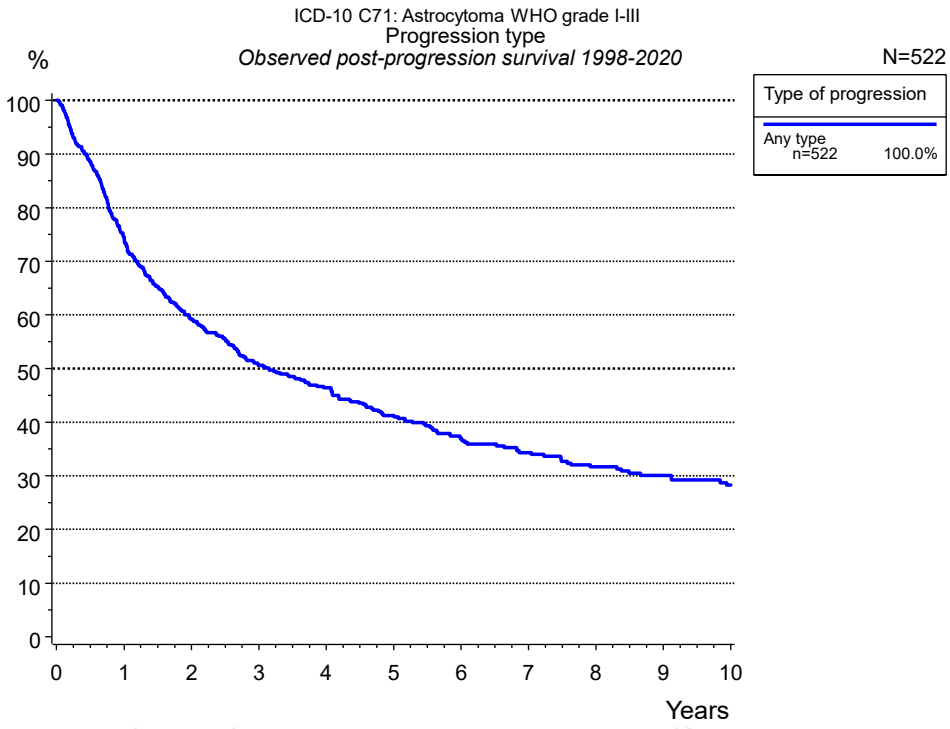

Figure 5c. Observed post-progression survival of 522 patients with astrocytoma I-III diagnosed between 1998 and 2020. These 522 patients with documented progression events during their course of disease represent 61.1 % of the totally 855 evaluated cases. Patients with cancer relapse documented via death certificates only were excluded (n=161, 18.8 %).

Medical record documentation often lacks the linguistic severity to distinguish between local relapse, regional lymph node metastasis and distant spread in solid cancers. Frequently, the statement “not specified” is the only information in registries regarding relapse of the disease. The category “Any type” denotes all cases who suffered from at least one relapse during the course of disease (incl. primary M1-status). Although, the real number of relapsed patients is likely to be much higher. The accumulated percentage of patients with local relapse or distant metastasis exceeds the 100 % value because patients are potientially considered in more than one subgroup.

	Type of progression
	Any type n=522
Years	%
0	100.0
1	74.5
2	59.2
3	50.6
4	46.4
5	41.2
6	36.8
7	34.3
8	31.7
9	30.1
10	28.2

Table 5d. Observed post-progression survival of patients with astrocytoma I-III for period 1998-2020 (N=522).

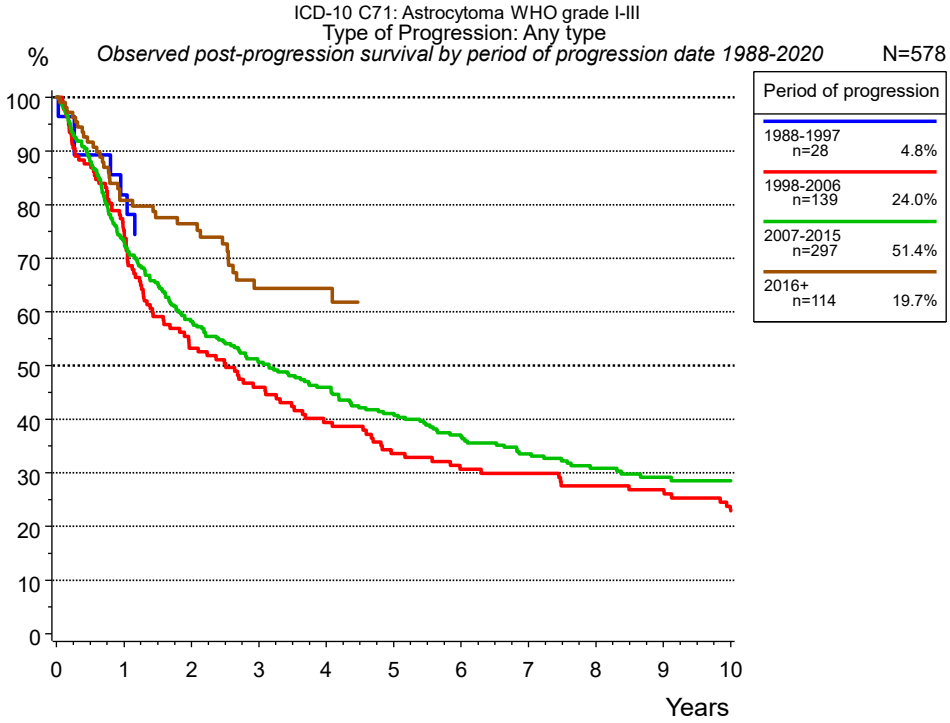

Figure 5e. Observed post-progression (any type) survival of 578 patients with astrocytoma I-III diagnosed between 1988 and 2020 by period of progression.

	Period of progression			
	1988-1997 n=28	1998-2006 n=139	2007-2015 n=297	2016+ n=114
Years	%	%	%	%
0	100.0	100.0	100.0	100.0
1	81.8	75.2	73.3	80.8
2		53.3	58.2	76.4
3		46.0	50.6	64.4
4		39.4	46.0	64.4
5		33.6	41.0	
6		30.7	36.7	
7		29.9	33.5	
8		27.6	30.9	
9		26.8	29.2	
10		22.9	28.5	

Table 5f. Observed post-progression (any type) survival of patients with astrocytoma I-III for period 1988-2020 by period of progression (N=578).

Shortcuts

MCR	Munich Cancer Registry, Germany	
NCI	National Cancer Institute, USA	
SEER	Surveillance, Epidemiology, and End Results, USA	
UICC	Union for International Cancer Control, Geneva	
DCO	Death certificate only	Death certificate provides the only notification to the registry.
NA	Not available	
NOS	Not otherwise specified	
OS	Overall/Observed survival	Overall/Observed survival (Kaplan-Meier estimate) Date of entry: diagnosis Event: death from any cause
RS	Relative survival	Survival compared to “general population”, ratio of observed to expected survival (Ederer II method), reflecting cancer specific survival
AS	Assembled survival	Assembled chart of observed, expected, relative survival
CS	Conditional survival	Survival probability under the condition of surviving a given period of time
TTP	Time to progression	Time to first progression / relapse Date of entry: diagnosis Event: (progression / relapse): first local-, lymph node recurrence, distant metastasis or unspecified progression
	1-KM	1 minus Kaplan-Meier estimator (“inverse” Kaplan-Meier estimator)
	CI	Cumulative incidence Death as competing risk (according to Kalbfleisch und Prentice)
PPS	Post-progression survival	Survival since first progression / relapse (Kaplan-Meier estimate) Date of entry (progression / relapse): first local-, lymph node recurrence, distant metastasis or unspecified progression Event: death from any cause

Recommended Citation

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