

Nationwide Trends in Management of Adult Myxopapillary Ependymoma

BACKGROUND

- Myxopapillary ependymomas (MPE) are WHO Grade I ependymomas that occur in the spine and have an annual incidence of 0.05-0.08 per 100,000 people.
- Maximal, safe surgical resection is the recommended first line therapy.
- Due to the rarity of the disease there is a relatively poor understanding of the use of radiotherapy (RT) in the management of disease.

MATERIALS AND METHODS

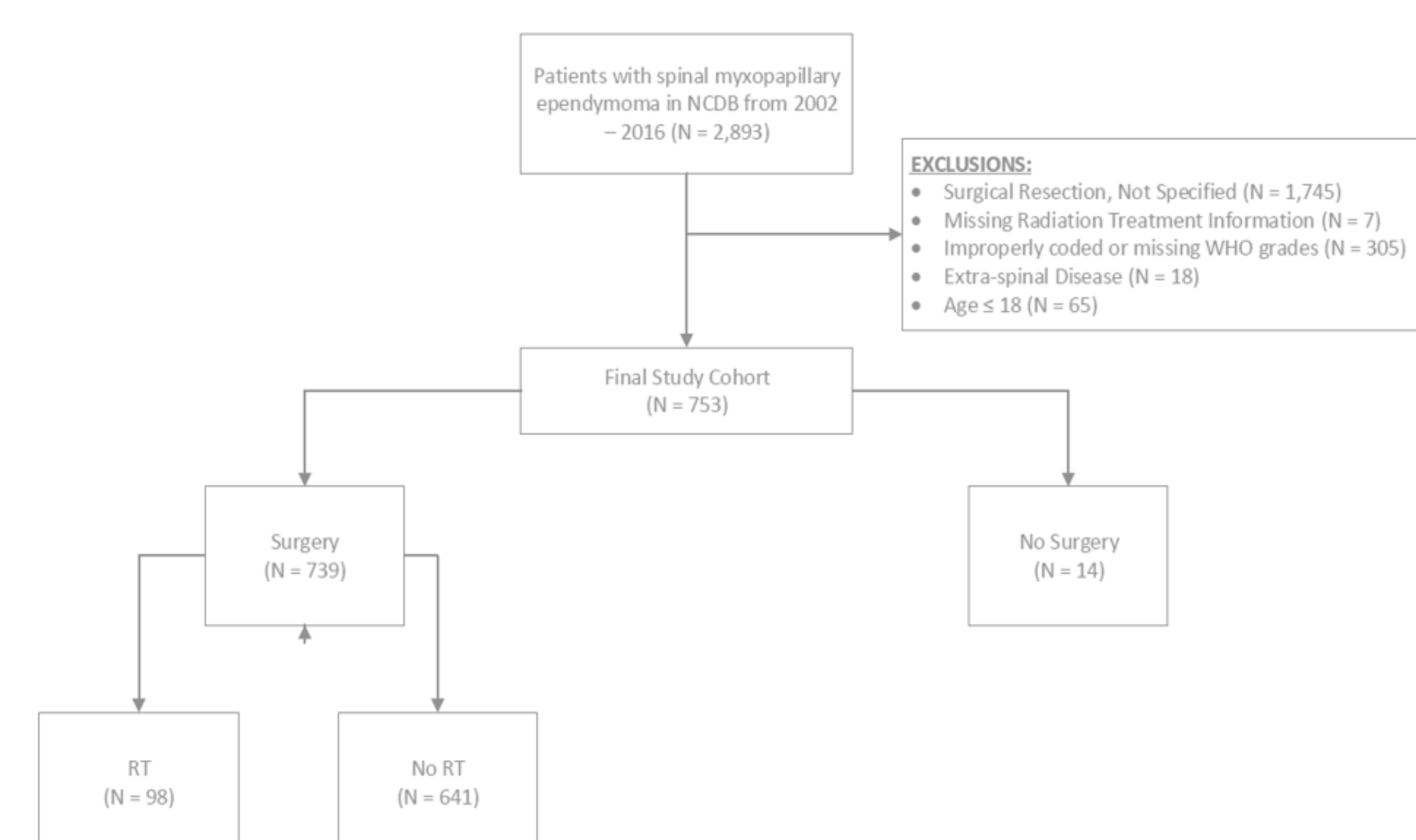
- Using the National Cancer Database (NCDB), we analyzed the patterns and impact of RT on spinal MPE in adults diagnosed between 2002 and 2016.

RESULTS

- Of 753 qualifying cases, the majority of patients underwent resection (n = 617, 81.9%).
- A relatively small portion received RT (n = 103, 13.3%) with most receiving RT after surgical resection (n = 98, 95.1%).
- The likelihood of patients to undergo resection and RT was significantly associated with patient age at diagnosis (p = 0.002), tumor size (p < 0.001), and race (p = 0.017).
- Chemotherapy was not widely utilized (only 0.27% of patients).

Figure 1. Exclusion and Inclusion Criteria for NCDB Analyses of Adult MPE Patients

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RESULTS

Table 1A. Percent and P-Value of Adult MPE Patient Characteristics based on Receipt of Adjuvant RT.

	No Radiation Therapy			Radiation Therapy			P-value
	N	Column %	Row %	N	Column %	Row %	
Sex							0.91
Male	347	54.1%	86.5%	54	55.1%	13.5%	
Race							0.017
Caucasian	535	83.5%	87.3%	78	79.6%	12.7%	
Black	27	4.2%	93.1%	*	2.0%	6.9%	
Asian/Pacific Islander	*	3.0%	100.0%	*	0.0%	0.0%	
Hispanic/Latino	39	6.1%	73.6%	*	14.3%	26.4%	
Other	*	1.4%	81.8%	*	2.0%	18.2%	
Unknown	*	1.9%	85.7%	*	2.0%	14.3%	
Comorbidities							0.56
0	535	83.5%	86.2%	86	87.8%	13.8%	
1	78	12.2%	88.6%	*	10.2%	11.4%	
≥ 2	28	4.4%	93.3%	*	2.0%	6.7%	
Insurance							0.38
Not Insured	22	3.4%	81.5%	*	5.1%	18.5%	
Private Insurance	449	70.0%	87.4%	65	66.3%	12.6%	
Medicaid	59	9.2%	85.5%	*	10.2%	14.5%	
Medicare	90	14.0%	89.1%	*	11.2%	10.9%	
Other Government	*	1.7%	73.3%	*	4.1%	26.7%	
Unknown	*	1.6%	76.9%	*	3.1%	23.1%	
Education							0.58
≥ 13% High School Graduates	245	38.3%	87.8%	34	34.7%	12.2%	
Income							0.91
≥ 48K	424	66.3%	86.9%	64	65.3%	13.1%	
Population							0.54
Non-Metropolitan	91	14.2%	85.0%	*	16.3%	15.0%	
Metropolitan	536	83.6%	87.0%	80	81.6%	13.0%	
Unknown	*	2.2%	87.5%	*	2.0%	12.5%	
Facility Type							0.18
Community Cancer Program	*	2.5%	84.2%	*	3.1%	15.8%	
Comprehensive Community Cancer Program	128	20.0%	93.4%	*	9.2%	6.6%	
Academic/Research Program	171	26.7%	86.8%	26	26.5%	13.2%	
Integrated Network Cancer Program	60	9.4%	89.6%	*	7.1%	10.4%	
Unknown	266	41.5%	83.4%	53	54.1%	16.6%	
Facility Location							0.051
East/Atlantic	140	21.8%	94.0%	*	9.2%	6.0%	
Central	159	24.8%	85.9%	26	26.5%	14.1%	
West	76	11.9%	88.4%	*	10.2%	11.6%	
Other	266	41.5%	83.4%	53	54.1%	16.6%	
Extent of Surgery							
No Surgery	*	1.2%	64.3%	5	0.7%	35.7%	
Surgery	641	85.1%	86.7%	98	13.0%	13.3%	

Table 1B. Median and Range of Adult MPE Patient Characteristics based on Receipt of Adjuvant RT.

	No Radiation Therapy			Radiation Therapy			P-value
	N	Median	Range	N	Median	Range	
Age	641	44	33-56	98	36	26-52	0.002
Tumor size (mm)	448	23	15-40	63	39	20-64	< 0.001
Greater Circle distance (mi)	640	15.85	7.55-37.2	98	16.25	6.3-39.7	0.83

* De-identified

RESULTS

Table 2. Adjuvant RT Administration in Adult MPE.

Extent of RT	N	Column %		
			Standard Deviation	Range
None	650	86.3%		
External Beam	89	11.8%		
SRS	*	0.1%		
	Median	Mean		
RT Regional Dose (Gy)	50.4	48.94	6.97	25-72
Radiation Ended (Days)	42	42.88	9.06	7-106
Number of RT to this Volume	28	28.87	4.92	5-56

CONCLUSIONS

- Given the high survival in this disease entity, the progression-free survival (PFS), an important outcome, is not available from this database even with the 15-year analysis of practice patterns.
- As expected, surgery is the primary means to manage adult MPE.
- For spinal MPE, gross total resection (GTR) is preferred when possible as studies have shown association of GTR with improved PFS.
- RT and chemotherapy are used infrequently. In univariate analyses, RT was employed more often for larger tumor sizes, Latino/Hispanic ethnicity, and younger age at diagnosis.
- The impact of RT on overall survival is indeterminate given the 1.6% death rate in the cohort.
- Analyses of the impact of RT on PFS in a larger database would be beneficial for determining an algorithm for post-operative and definitive radiotherapy in this disease entity.

DISCLOSURES

Baracena, Khudanyan, Kelly, Turina, Jaboin, McClelland – nothing to disclose

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