A large population-based study on patients with meningioma using the Surveillance, Epidemiology and End Results Database



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BACKGROUND

- Meningiomas are the most prevalent benign tumors of the central nervous system, accounting for approximately 38.3% of all primary intracranial tumors in the United States, with an incidence rate of 8.81 per 100,000 person-years.¹
- These tumors are more commonly diagnosed in women and their incidence increases with age.²
- Recent studies indicate that while the overall incidence of meningiomas increased through 2010, it has since stabilized.¹
- To fully comprehend the public health impact of meningiomas and identify key prognostic factors, we are

METHODS

- Patients diagnosed with meningioma between 2000 and 2020 were extracted from the Surveillance, Epidemiology, and End Results (SEER) database.
- Our primary endpoint was overall survival (OS).
- Patient sex, patient age, patient race, patient household income, and patient house location (rural/suburban/urban) were selected as prognostic indicators.
- •Univariate and multivariable Cox proportional hazard models were utilized to identify prognostic factors significantly affecting overall survival (OS).
- Kaplan-Meier survival curves were generated for variables

conducting a systematic epidemiological evaluation and large-scale survival analysis to elucidate the variables influencing patient outcomes and inform future therapeutic strategies.

•We utilize the Surveillance, Epidemiology, and End Results (SEER) database for this retrospective cohort study.

that demonstrated statistical significance to aid in visualizing survival for key populations within our cohort

A predictive nomogram was developed to estimate 5-year and 10-year survival probabilities with acceptable accuracy.



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60

70

19-65

Birth to 18

DISCUSSION

- This study represents the largest retrospective cohort analysis of patients with meningioma to date, encompassing 139,222 cases over a 20-year period.
- The findings confirm significant disparities in OS among meningioma patients
- •Male patients exhibit poorer OS compared to females.

FUTURE DIRECTIONS

- This study emphasize the importance of addressing sociodemographic and geographic disparities in meningioma outcomes, while supporting the use of predictive models to guide clinical decision-making and resource allocation.
- Develop an app-based calculator that leverages our

Younger patients (birth to 18 years) have better OS compared to patients aged 19–65 years and those older than 65.

African American patients demonstrate poorer OS compared to White patients. •Higher household income (> \$75,000) is associated with better OS compared to lower-income groups. Urban residents have improved OS relative to rural residents.

The predictive nomogram developed in this study demonstrates strong performance, with a C-index of 0.70 predictive nomogram data to provide clinicians with individualized prognostication tools, supported by statistically significant models.

REFERENCES

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