# Adult ependymoma: results from the Dutch Brain Tumour Registry on primary treatment and survival

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Aims and scope

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## Abstract

### Purpose

Ependymomas are rare tumours of the central nervous system (CNS). This study reports real-world data regarding primary treatment and outcome for adult patients diagnosed in the Netherlands between 2014 and 2023.

### Methods

Diagnostic and treatment data on adult patients with a newly diagnosed ependymoma were obtained from the Dutch Brain Tumour Registry. Factors associated with incomplete resection and adjuvant radiotherapy (RT) were identified using logistic regression analyses, thereby accounting for variation between CNS regional tumour boards through mixed-effect modelling when relevant. In case of variation, case-mix adjusted ratios of tumour boards were evaluated in funnel plots. Prognostic factors for overall survival (OS) at 5 years were assessed with the Kaplan-Meier method and Cox proportional hazards regression models. Analyses were performed on multiple imputed

datasets (m = 10) to account for missing data.

## Results

Among 575 patients, 74 (12.9%) ependymomas were located in the supratentorial region, 129 (22.5%) in the posterior fossa, and 370 (64.6%) in the spine. Incomplete resection occurred more often in posterior fossa, and in larger and metastatic/multifocal ependymomas. Adjuvant RT was administered to 47 of 173 patients with a metastatic/multifocal and/or incompletely removed WHO grade 1–2 tumour (27.2%), and to 26 of 34 patients with a WHO grade 3 ependymoma (76.5%). Adjuvant RT conferred significant survival benefit (hazard ratio 0.17, 95% confidence interval 0.06–0.53, $p < 0.01$) following adjustment for other factors.

## Conclusion

This study substantiates the benefit of adjuvant RT for selected adult patients with an ependymoma and emphasizes the need for more coordinated management across tumour boards.

## Data availability

The datasets generated and/or analysed for the study are available from the Netherlands Comprehensive Cancer Organisation (IKNL), Utrecht, the Netherlands, on reasonable request (https://iknl.nl/en/ncr/apply-for-data).

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### Contributions

VH, FdV, MtL and JB contributed to the study conception and design. Material preparation, data collection and analysis were performed by VH. The first draft of the manuscript was written by VH and all authors commented on previous versions of the manuscript. All authors read and approved the final manuscript.

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## Ethics declarations

### Ethics approval

The supervisory committee of the NCR has confirmed that no ethical approval was required for this observational study.

### Competing interests

The authors declare no competing interests.

## Additional information

### Publisher's note



## Supplementary Information

Below is the link to the electronic supplementary material.

## Supplementary Material 1

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