RETROSPECTIVE ANALYSIS OF RECURRENCE PATTERNS AND CLINICAL OUTCOME OF GRADE I-III MENINGIOMAS FOLLOWING SURGERY

Yuli Felistia [1,2], Nadira Fildza Amanda [3], Nugroho Harry Susanto [4], Sardiana Salam [1,2], Diorita Dyah Prayanti [1,2], Viola Maharani [1,2], Chairunnisa [1,2], Silvia F. Lumempouw [1,2]

1. National Brain Centre Hospital Prof DR dr Mahar Mardjono, Jakarta, Indonesia
2. Faculty of Medicine, Airlangga University, Surabaya, Indonesia
3. Faculty of Medicine, University of Indonesia, Jakarta, Indonesia
4. Indonesia Research Partnership on Infectious Disease (INA-RESPOND), Jakarta, Indonesia

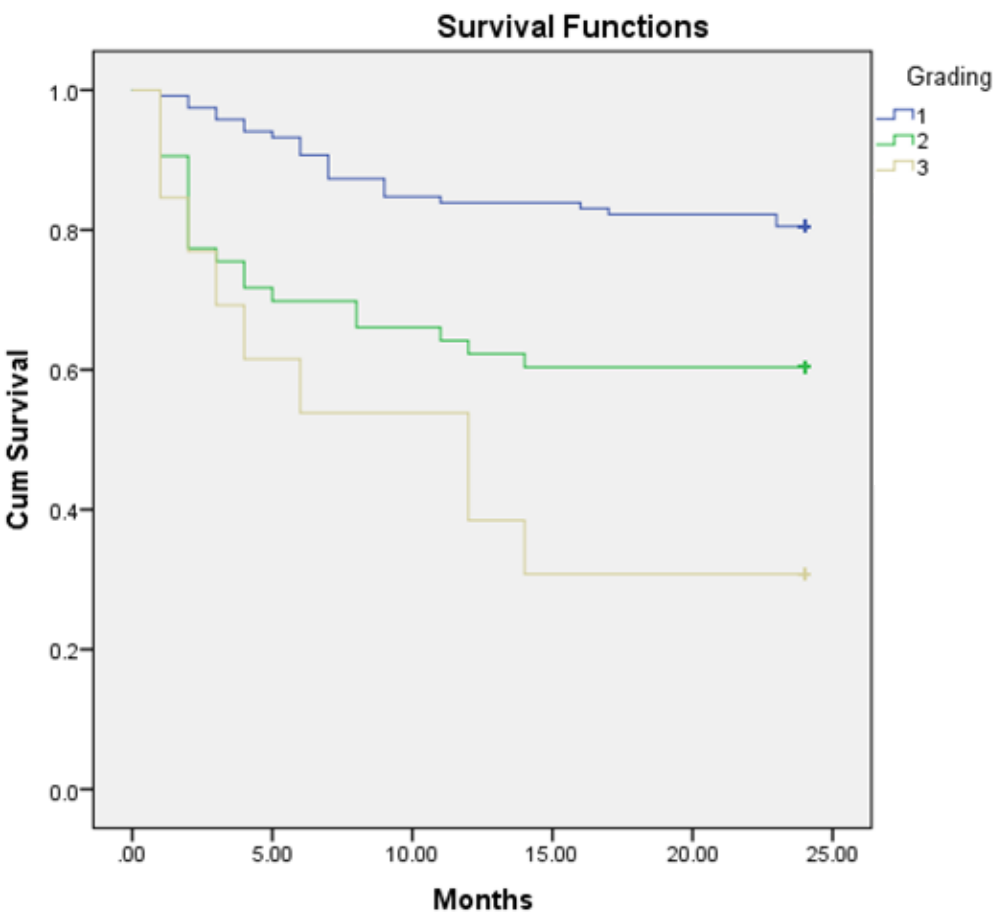
Table 1. Meningioma grade and recurrence

Grade	Recurrence Yes	Recurrence No	P value
WHO Grading			
I	23 (19.5)	95 (80.5)	< 0.001
II & III	30 (45.5)	36 (54.5)	

Table 2. Meningioma grade and recurrence

Grade	Mortality Yes	Mortality No	P value
Simpson Grading			
I	1(12.5)	7 (87.5)	1.000*
II – III	5 (11.1)	40 (88.9)	
WHO Grading			
I	2 (8.7)	21 (91.3)	0.687*
II & III	4 (13.3)	26 (86.7)	

Figure 1. Kaplan-Meier curve of WHO grading and meningioma recurrence



OBJECTIVES

To analyze the outcome of meningioma patients with WHO grade I-III underwent surgical resection and identify factors that may influence recurrence and survival.

METHODS

Meningioma patients who underwent surgical treatment at National Brain Center Hospital between January 2020 to December 2022 were retrospectively analyzed. The clinical characteristics of patients who had recurrence including gender, age, preoperative Karnofsky Performance scale (KPS), grading, and radiotherapy were obtained. The time of recurrence was calculated within 2 years following the surgery. Magnetic resonance imaging (MRI) or computed tomography (CT) results were evaluated to determinate meningioma location. WHO grading was decided from pathological examination. The survival analysis of meningioma recurrence with different grades were evaluated with Kaplan-Meier's curves.

RESULTS

Out of 184 patients who underwent surgical resection due to meningioma, 53 patients (28.8%) had been diagnosed with recurrence meningioma. The recurrence group was mostly women (81%) that had pre-operative KPS >70% (83%), Simpson grading II – III (60.3%), WHO grading II (39.6%), located in convexity (24.5%), did not have radiotherapy history (81.1), and ≥ 2 resection (64.15%). The average recurrence-free months was 17.95 ± 20.39 months since surgery. Mortality of meningioma recurrence patients was mostly seen in WHO grade II (11.1%). Kaplan-Meier's curve showed postoperative recurrence differ between grading subgroups and the WHO grade 3 meningioma had the highest recurrence event rate thus leading to worse prognosis.

CONCLUSIONS

Meningiomas with a higher grade have a higher likelihood of recurring and unfavorable outcome. Further study is needed to evaluate the tumor recurrence at a molecular level. Employing a multidisciplinary approach for treatment leads to improved therapy outcomes and reduces complications associated with tumor recurrence.