Meningioma outcome

Whereas the meningioma outcomes differs depending on their epigenomics/transcriptomics profile, the effect of NF2 alteration on the prognosis of benign meningiomas is not fully elucidated. A study aimed to probe the importance of NF2 alteration in the prognosis of World Health Organization grade 1 meningioma. A long-term retrospective follow-up (5.3 ± 4.5 years) study involving 281 consecutive WHO grade I meningioma patients was performed.

Teranishi et al. assessed tumor recurrence in correlation with extent of resection (EOR), histopathological findings, tumour location, and NF2 alteration. “NF2 meningioma” was defined as meningiomas with the presence of NF2 mutation and/or chromosome 22q loss. Overall, NF2 meningioma per se was not a predictor of prognosis in the whole cohort; however, it was a predictor of meningioma recurrence in supratentorial meningiomas, together with EOR and Ki-67. In striking contrast, NF2 meningioma showed a better prognosis than non-NF2 meningioma in infratentorial meningioma. Supratentorial NF2 meningiomas had higher Ki-67 and FOXM1 than those of others, possibly explaining the worse prognosis in this subtype. The combination of NF2 alteration, high Ki-67, and the supratentorial location defines a subgroup with the worst prognosis among WHO grade I meningiomas. Clinical connotation of NF2 alteration in terms of prognosis of WHO grade I meningioma differs in an opposite way between supratentorial and infratentorial tumors. Integrated anatomical, histopathological, and genomic classifications will provide the best follow-up schedule and proactive measures [1)].

Population-based data from Saarland, a federal state in South-Western Germany, were used; the data included 992 patients diagnosed with a first meningioma between 2000 and 2015. Incidence and mortality rates-as well as estimates of observed and relative survival and cumulative incidence of tumor recurrence up to 10 years after diagnosis-were derived by sex, age, WHO grade, and whether or not the patient had undergone surgery.

RESULTS: This population-based study not only included patients treated in the regional university hospital but also those treated elsewhere or patients without any surgical treatment. The mean age of the patients at diagnosis was 63 years, and 70%, 28% and 3% had WHO grade I, II and III meningiomas, respectively. Ten-year observed and relative survival of all patients combined was 72% and 91% respectively. Tumor-related mortality varied by sex and increased with age at diagnosis and the WHO grade of the tumor. The overall 10-year cumulative incidence of meningioma recurrence was 9%.

CONCLUSION: This analysis represents the first modern population-based analysis of meningioma incidence and mortality and outcomes of patients with such neoplasms in Germany. Derived from an unselected sample of patients, this study may fill a hitherto existing gap in the literature on meningiomas [2)].

The vast majority of meningiomas are benign, well differentiated, and with low proliferative potential.

Histological type is the major predictor of meningioma behavior.

The outcomes of patients with surgery and radiation refractory meningiomas treated with medical

therapies are poorly defined. Published reports are limited by small patient numbers, selection bias, inclusion of mixed histologic grades and stages of illness, and World Health Organization (WHO) criteria changes.

A PubMed literature search was performed for all English language publications on medical therapy for meningioma. Reports were tabulated and analyzed for number of patients, histologic grade, prior therapy, overall survival, progression-free survival (PFS), and radiographic response.

Forty-seven publications were identified and divided by histology and prior therapies, including only those that treated patients who were surgery and radiation refractory for further analysis. This included a variety of agents (hydroxyurea, temozolomide, irinotecan, interferon-α, mifepristone, octreotide analogues, megestrol acetate, bevacizumab, imatinib, erlotinib, and gefitinib) from retrospective, pilot, and phase II studies, exploratory arms of other studies, and a single phase III study. The only outcome extractable from all studies was the PFS 6-month rate, and a weighted average was calculated separately for WHO grade I meningioma and combined WHO grade II/III meningioma. For WHO I meningioma, the weighted average PFS-6 was 29% (95% confidence interval [CI]: 20.3%-37.7%). For WHO II/III meningioma, the weighted average PFS-6 was 26% (95% CI: 19.3%-32.7%). This comprehensive review confirms the poor outcomes of medical therapy for surgery- and radiation-refractory meningioma. We recommend the above PFS-6 benchmarks for future trial design [3].

The serum levels of miR-106a-5p, miR-219-5p, miR-375, and miR-409-3p were significantly increased, whereas the serum levels of miR-197 and miR-224 were markedly decreased. The area under the ROC curve (AUC) for the six combined MicroRNAs was 0.778. The 4 increased MicroRNAs were significantly decreased, while the 2 decreased MicroRNAs were significantly increased after tumor removal. Furthermore, the expression levels of miR-224 were associated with sex, and the expression levels of miR-219-5p were positively associated with the clinical stages of meningioma. Finally, the high expression of miR-409-3p and low expression of miR-224 were significantly correlated with higher recurrence rates. The study revealed that the panel of 6 serum MicroRNA may have the potential to be used clinically as an auxiliary tool for meningioma patients [4].

Studies have identified telomerase reverse transcriptase (TERT) promoter mutations in a small subset of meningiomas as being associated with a higher risk of recurrence and shorter time to progression [5] [6] [7].

S100 in meningioma

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[1]
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