A graded prognostic assessment scale to predict overall survival in patients diagnosed with brain metastases undergoing Gamma-knife radiosurgery

Sohrab Shahzadi [a], Parisa Azimi [a,*], Mohammad Ali Bitaraf [b], Maziar Azar [b], Mazdak Alikhani [c], Alireza Zali [a], Sohrab Sadeghi [a], Soraya Salmanian [d]

[a] Department of Neurosurgery, Shahid-Beheshti University of Medical science, Tehran, Iran.

[b] Department of Neurosurgery, Tehran University of Medical science, Tehran, Iran.

[c] Neurosurgeon, Iranian Gamma-Knife Center, Tehran, Iran.

[d] Department of Radiotherapy, Tehran University of Medical science, Tehran, Iran.

Abstract:

Background: The present study aims to evaluate the Graded Prognostic Assessment (GPA) score for predicting overall survival in patients diagnosed with brain metastases undergoing Gamma-knife radiosurgery.

Methods: This was a cross sectional study conducted on the patients diagnosed with brain metastases undergoing Gamma-knife radiosurgery during 2003 to 2011. Clinical and radiological parameters were evaluated, and the GPA score were determined. Kaplan–Meier and log-rank tests were used to assess prognostic factors of the GPA.

Results: Two hundred and twenty patients were eligible to enter the study during the eight years course of study. The mean age of the patients was 54 ± 12.7 years (ranged 19 to 82 years) and were followed up for an average of 7 (range=1-25) months post Gamma-knife surgery. Median survival times according to the GPA were: GPA 0–1, 4 ± 0.4 months; GPA 1.5–2.5, 6 ± 0.7 months; GPA 3, 9 ± 0.9 months; and GPA 3.5–4.0, 12 ± 1.8 months and overall survival were 7 ± 0.6 months. The level of statistical significance among GPA groups was p less than 0.0001.

Conclusion: It seems that the preoperative GPA is able to predict Gamma-knife radiosurgery results in patients with brain metastases. However, the results should be confirmed with further clinical trial assessments.

Keywords:

Brain metastases, GPA Score, Gamma-knife radiosurgery, Predict

* *Corresponding Author at:*
Parisa Azimi: Department of Neurosurgery, Imam-Hossain Hospital, Shahid-Beheshti University of Medical Sciences, Imam-Hossain sq., Tehran, Iran.
Email: Parisa.azimi@gmail.com, (Azimi P.).