

## **The importance of tumor volume in the prognosis of patients with glioblastoma: comparison of computerized volumetry and geometric models.**

[Iliadis G](#), [Selviaridis P](#), [Kalogera-Fountzila A](#), [Fragkoulidi A](#), [Baltas D](#), [Tselis N](#), [Chatzistiriou A](#), [Misailidou D](#), [Zamboglou N](#), [Fountzilias G](#).

### **Source**

Department of Radiation Oncology, "Papageorgiou" General Hospital, Thessaloniki, Greece.  
iliadisg@the.forthnet.gr

### **Abstract**

#### **BACKGROUND AND PURPOSE:**

The importance of tumor volume as a prognostic factor in high-grade gliomas is highly controversial and there are numerous methods estimating this parameter. In this study, a computer-based application was used in order to assess tumor volume from hard copies and a survival analysis was conducted in order to evaluate the prognostic significance of preoperative volumetric data in patients harboring glioblastomas.

#### **PATIENTS AND METHODS:**

50 patients suffering from glioblastoma were analyzed retrospectively. Tumor volume was determined by the various geometric models as well as by an own specialized software (Volumio). Age, performance status, type of excision, and tumor location were also included in the multivariate analysis.

#### **RESULTS:**

The spheroid and rectangular models overestimated tumor volume, while the ellipsoid model offered the best approximation. Volume failed to attain any statistical significance in prognosis, while age and performance status confirmed their importance in progression-free and overall survival of patients.

#### **CONCLUSION:**

Geometric models provide a rough approximation of tumor volume and should not be used, as accurate determination of size is of paramount importance in order to draw safe conclusions in oncology. Although the significance of volumetry was not disclosed, further studies are definitely required.