

ABSTRACT

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Occurrence, Risk Factors, and Consequences of Postoperative Ischemia After Glioma Resection: A Retrospective Study.

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BACKGROUND: Postoperative ischemia can lead to neurological deficits and is a known complication of glioma resection. There is inconsistency in documented incidence of ischemia after glioma resection, and the precise cause of ischemia is often unknown.

OBJECTIVE: To assess the incidence of postoperative ischemia and neurological deficits after glioma resection and to evaluate their association with potential risk factors.

METHODS: One hundred thirty-nine patients with 144 surgeries between January 2012 and September 2014 for World Health Organization (WHO) 2016 grade II-IV diffuse supratentorial gliomas with postoperative MRI within 72 hours were retrospectively included. Patient, tumor, and perioperative data were extracted from the electronic patient records. Occurrence of postoperative confluent ischemia, defined as new confluent areas of diffusion restriction, and new or worsened neurological deficits were analyzed univariably and multivariably using logistic regression models.

RESULTS: Postoperative confluent ischemia was found in 64.6% of the cases. Occurrence of confluent ischemia was associated with an insular location ($P = .042$) and intraoperative administration of vasopressors ($P = .024$) in multivariable analysis. Glioma location in the temporal lobe was related to an absence of confluent ischemia ($P = .01$). Any new or worsened neurological deficits occurred in 30.6% and 20.9% at discharge from the hospital and at first follow-up, respectively. Occurrence of ischemia was significantly associated with the presence of novel neurological deficits at discharge ($P = .013$) and after 3 months ($P = .024$).

CONCLUSION: Postoperative ischemia and neurological deficit were significantly correlated. Intraoperative administration of vasopressors, insular glioma involvement, and absence of temporal lobe involvement were significantly associated with postoperative ischemia.

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