Hyperglycemia is independently associated with post-operative function loss in patients with primary eloquent glioblastoma.

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Abstract

The poor prognosis for patients with glioblastoma (GB) heightens the importance of maintaining function throughout treatment. Hyperglycemia has been linked to poor neurological outcomes following stroke, traumatic brain and spinal cord injury. We hypothesized this may also be true following the resection of GB. We assessed associations with post-operative function with the goal of identifying modifiable factors in the peri-operative period with a particular focus on blood glucose levels. Independent associations with worse post-operative function included: patient age, pre-operative motor deficit, deep tumor location, post-operative motor deficit, and elevated mean peri-operative glucose. Interestingly, controlling for associated factors including dexamethasone dosing, patients with elevated peri-operative glucose levels were nearly twice as likely to have new post-operative neurological deficits. These results suggest, together with the broad literature supporting a role for hyperglycemia in neurological injury, that this may represent a modifiable factor in the peri-operative care of these patients.

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PMID: 22595358 [PubMed - as supplied by publisher]