ABSTRACT

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Risk of intracranial hemorrhage with direct oral anticoagulants versus low molecular weight heparin in glioblastoma: A retrospective cohort study.

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BACKGROUND: Glioblastoma (GBM) is associated with a high incidence of venous thromboembolism (VTE), but there is little data to guide anticoagulation in GBM patients, in whom the risks of VTE must be balanced against the risk of intracranial hemorrhage (ICH).

METHODS: We performed a single-institution retrospective cohort study of patients with GBM diagnosed with VTE from 2014-2021 who were treated with low molecular weight heparin (LMWH) or a direct oral anticoagulant (DOAC). The incidence of ICH was compared between the LMWH and DOAC groups. The primary outcome was clinically relevant ICH within the first 30 days of anticoagulation, defined as any ICH that was fatal, symptomatic, required surgical intervention, and/or led to cessation of anticoagulation. Secondary outcomes included clinically relevant ICH within 6 months, fatal ICH within 30 days and 6 months, and any bleeding within 30 days and 6 months.

RESULTS: 121 patients were identified in the cohort for 30-day outcome analyses (DOAC, n=33; LMWH, n=88). For 6-month outcome analyses, the cohort included only patients who were maintained on their initial anticoagulant (DOAC, n=32; LMWH, n=75). The incidence of clinically relevant ICH at 30 days was 0% in the DOAC group and 9% in the LMWH group (p=0.11). The cumulative incidence of clinically relevant ICH at 6 months was 0% in the DOAC group and 24% in the LMWH group (p=0.001), with 4 fatal ICHs in the LMWH group.

CONCLUSIONS: DOACs are associated with a lower incidence of clinically relevant ICH in patients with GBM-associated VTE compared to LMWH.

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