Convection-enhanced delivery of topotecan active in glioblastoma

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A subcutaneously implanted, catheter-pump system capable of chronic

convection-enhanced delivery (CED) of topotecan is well tolerated and active for patients with recurrent glioblastoma, according to a study published in the November issue of *The Lancet Oncology*.

Eleonora F. Spinazzi, M.D., from the Columbia University Irving Medical Center in New York City, and colleagues conducted a single-center, phase 1b clinical trial involving patients aged 18 years or older with solitary, histologically confirmed recurrent glioblastoma showing radiographic progression after surgery, radiotherapy, and chemotherapy.

Five patients had catheters stereotactically implanted into the glioma-infiltrated peritumoral brain; these were connected to subcutaneously implanted pumps that infused topotecan for 48 hours followed by a washout period of five to seven days before the next infusion; four infusions were administered. The pump was removed and the tumor was resected after the fourth infusion.

The researchers found that chronic CED of topotecan was successfully completed in all five patients between Jan. 22, 2018, and July 8, 2019; the treatment was well tolerated without substantial complications. The only treatment-related adverse event was intraoperative supplemental motor area syndrome (one patient); no grade 4 adverse events occurred.

Other serious adverse events were related to surgical resection. Patients were followed for a median of 12 months from pump explant; posttreatment tissue analysis indicated that in all five patients, there was a significant reduction in proliferating tumor cells.

"This novel drug delivery strategy and innovative clinical trial framework overcomes limitations in delivery and treatment response assessment in patients with glioma, and larger studies are warranted to determine the effect of this drug delivery approach on clinical outcomes," the authors write.

Several authors disclosed financial ties to the biopharmaceutical industry.

More information: Eleonora F Spinazzi et al, Chronic convection-enhanced delivery of topotecan for patients with recurrent glioblastoma: a first-in-patient, single-centre, single-arm, phase 1b trial, *The Lancet Oncology* (2022). DOI: 10.1016/S1470-2045(22)00599-X

Jacob S Young et al, Chronic convection-enhanced intratumoural delivery of chemotherapy for glioblastoma, *The Lancet Oncology* (2022). DOI: 10.1016/S1470-2045(22)00626-X