

Triolein

Triolein is a symmetrical [triglyceride](#) derived from [glycerol](#) and three units of the unsaturated fatty acid oleic acid. Most triglycerides are unsymmetrical, being derived from mixtures of fatty acids. Triolein represents 4-30% of olive oil.

Triolein is also known as glyceryl trioleate and is one of the two components of Lorenzo's oil.

Triolein emulsion infusion into the [carotid artery](#) has been reported to induce temporary and reversible opening of the [blood brain barrier](#) by increasing vascular permeability.

In the doxorubicin study, 2.4 mg/kg doxorubicin was injected immediately after triolein emulsion (1%, 1.5%, and 2%) infusion into rabbit carotid arteries. Two hours later, bilateral hemispheres and eyeballs were harvested, and doxorubicin concentrations were measured fluorometrically. Doxorubicin ratios of ipsilateral/contralateral hemispheres were compared with those of doxorubicin controls by use of the Kruskal-Wallis test followed by the Dunn test. In the cisplatin study, 10 mg/kg cisplatin was injected immediately after 2% triolein emulsion infusion into rat carotid arteries. Ipsilateral hemispheres were harvested 2, 6, 12, 24, and 36 hours after treatment. Time-dependent cisplatin concentrations were determined by liquid chromatography/electrospray ionization-tandem mass spectrometry/mass spectrometry.

Doxorubicin concentrations were significantly higher in ipsilateral hemispheres and eyeballs in all 3 triolein treatment groups than in doxorubicin controls. In the cisplatin study, cisplatin concentrations in the ipsilateral hemispheres peaked at 6 hours after infusion of cisplatin.

Brain permeance to anticancer agents was increased by triolein emulsion infusion, which suggests that triolein infusion might be a useful adjuvant treatment for brain tumors ¹⁾.

¹⁾

Kim HJ, Kim YW, Choi SH, Cho BM, Raju B, Ahn HS, Kim K. Triolein Emulsion Infusion Into the Carotid Artery Increases Brain Permeability to Anticancer Agents. Neurosurgery. 2015 Nov 4. [Epub ahead of print] PubMed PMID: 26540353.

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