Taurolidine-Fibrin-Sealant-Matrix using spray application for local treatment of brain tumors.

Authors: Stendel R, Scheurer L, Schlatterer K, Gminski R, Mohler H

Publication Date: 2004

Abstract:

Malignant gliomas tend to recur in the vast majority of cases. Recurrent gliomas may arise from vital tumor cells present in this zone around the resection margin. It appears promising to combine tumor resection with local chemotherapy using an antineoplastic, but non-toxic agent. Taurolidine exerts a selective antineoplastic effect by induction of programmed cell death and has anti-angiogenic activity. Fibrin sealant is completely degradable and firmly adheres to brain tissue, suggesting that it would provide a suitable matrix for taurolidine delivery--a Taurolidine-Fibrin-Sealant-Matrix (TFM)--in the local treatment of brain tumors. The potential of local delivery of taurolidine out of a fibrin sealant matrix was investigated. Taurolidine could be suspended homogeneously in both the thrombin and the procoagulant protein components of the fibrin sealant. The fibrin sealant matrix was a suitable carrier for the suspension of taurolidine at a concentration that ensured the release of therapeutically effective amounts of the drug over a period of 2 weeks in vitro. The antineoplastic action of taurolidine was not affected by embedding in the fibrin sealant matrix. The described drug delivery system may be suitable for local taurolidine treatment of brain tumors following complete or partial resection or of tumors that are non-resectable because of their location.