Far-infrared ray

Malignant glioma is a rapidly progressive primary brain cancer. The aim of the study was to investigate the effect of far-infrared ray (FIR) on temozolomide (TMZ)-treated glioma in rats.

MATERIALS AND METHODS: Male, 8-week old, Fischer 344 inbred rats with glioma were randomly divided into three study groups (20 rats in each group). The control group received saline only once daily for 5 days. The TMZ group received TMZ (30 mg/kg) once daily for 5 days. The TMZ plus FIR group received TMZ (30 mg/kg) once daily for 5 days and infrared-c irradiation of 40 min twice daily for 4 weeks. The relative tumor fold and the expression of hypoxia-induced factor-1α (HIF-1α) and vascular endothelial growth factor (VEGF) were compared using one-way ANOVA at the end of study.

RESULTS: The relative tumor fold of the TMZ+FIR group was significantly higher compared to the control group, and was borderline higher compared to the TMZ group at Day 7. The relative tumor fold of TMZ+FIR group was significantly higher compared to the control group and the TMZ group at Days 14, 21 and 28. HIF-1α expression of TMZ+FIR group was borderline higher compared to the control group at Day 28. The VEGF expression of TMZ+FIR group was significantly higher compared to the control group and the TMZ group at Day 28.

FIR might increase the growth of glioma under TMZ treatment in rats possibly via increasing VEGF expression, but not HIF-1α expression [1)].

1)
Chen JC, Hwang JH. Effects of Far-infrared Ray on Temozolomide-treated Glioma in Rats. In Vivo. 2019 Jul-Aug;33(4):1203-1208. doi: 10.21873/invivo.11591. PubMed PMID: 31280210.

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