

Phase II clinical study on relapsed malignant glioma treated with electro-hyperthermia

Fiorentini Giammaria¹, Patrizia Denticò², Gina Turrisi², Carlo Milandri²

(1) Department of Oncology-hematology Azienda Ospedaliera Ospedali Riuniti Marche Nord, 61121, Pesaro, Italy

(2) Oncology Unit, Department of Medicine, San Giuseppe General Hospital, 50053, Empoli, Florence, Italy

The purpose of this study was to evaluate the activity and toxicity of electro-hyperthermia (ET) on relapsed malignant glioma patients. Twenty four patients with histologically diagnosed malignant glioma entered the study. Sixteen patients had glioblastoma multiforme, four had anaplastic astrocytoma grade III and four had anaplastic oligodendroglioma. All patients were pre-treated with temozolamide-based chemotherapy and radiotherapy. Hyperthermia with short radiofrequency waves of 13.56 MHz was applied using a capacitive coupling technique keeping the skin surface at 20 degrees C. The applied power ranged between 40-150 Watts and the calculated average equivalent temperature in the tumours was above 40 degrees C for more than 90% of the treatment duration. Two complete remission and 4 partial remission were achieved, with a response rate of 25%. The median duration of response was 10 months (range 5-88). The median survival of the entire patient population was 9 months, with 25% survival rate at 2 year. ET appears to have effectiveness in adults with relapsed astrocytoma and malignant glioma.