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CLINICAL RESULTS OF RF  
INTERSTITIAL HYPERTHERMIA OF 64  
DEEP SEATED MALIGNANT CEREBRAL  
GLIOMAS

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## OBJECTIVES:

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Clinical results of 13.56 Mhz RF interstitial hyperthermia performed on 64 patients with deep-seated cerebral malignant glioma are described.

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## METHODS:

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Single or double stainless needle antennas with a diameter of 1.0 mm were inserted into the deep-seated cerebral malignant gliomas using stereotaxic techniques and computer simulation system for thermal distribution. RF output was controlled to heat the tumor margin up to 42.5 °C in the eloquent area and 43.0 °C in non-eloquent area. Heating was done for 60 minutes in each heating and repeated 3 to 4 times combined with (36 primary cases) or without (28 recurrent cases) conventional radio-chemotherapy. The results were compared with those in 44 historical control cases treated with biopsy and radio-chemotherapy alone.

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## RESULTS:

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The heating was done without anesthesia and the patients complained no pain or heat sensation. Minor complication such as transient symptomatic brain edema in 8, liquorrhea in 2, subcutaneous infection in 2 and intratumoral hemorrhage in 1 case. The response rates of the treated tumors evaluated on CT were 64% (CR 9, PR 14) in 36 primary cases, 44% (CR 3, PR 10) in recurrent cases and 18% (CR 0, PR 8) in control group.

The median survival times in primary cases were 13 months in hyperthermia group and 9 months in control group, although the difference between both groups was not significant statistically.

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## CONCLUSION:

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The RF interstitial hyperthermia can be a powerful new modality of reductive therapy for malignant cerebral gliomas especially for deep-seated tumors. The less invasiveness of the technique is also worth to mention in the treatment of deep-seated tumors or tumors of aged or poor risk patients. Further improvements of heating technique and planning are required.