

International Conference on

Nuclear Medicine & Radiation Therapy

July 14-15, 2016 Cologne, Germany



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High intra-arterial drug exposure for advanced head and neck cancer patients

Introduction: Standard treatment for tumors of the head and neck are radiochemotherapy and surgery. In far, advanced or recurrent cases surgery may be impossible or mutilating and side-effects from irradiation in terms of nerve damage and mouth dryness are not reversible. In order to avoid toxicity and permanent tissue and nerve damage, we performed a study with carotid artery infusion and chemofiltration for simultaneous detoxification.

Material & Methods: Carotid artery infusion was accomplished either via angiographic catheters in Seldinger's technique or by means of end-to-side implantation of Jet Port Allround catheters into one or two carotid arteries respectively. Intra-arterial infusion time of a three-drug combination consisting of Cisplatin, Adriamycin and Mitomycin in 7 to 10 minutes short term infusions generates local drug levels eighty- to hundred-fold higher than during systemic chemotherapy. A total of 26 patients were included in the study, 18 patients in clinical stage IV, 5 in stage III and 3 in stage II respectively. For follow-up control and determination of adverse effects, blood work (hemoglobine, white blood count, platelets, cardiac, kidney and liver enzymes), performance scale, pain score, survival rate, hospitalization and side-effects were noted.

Results: Five out of 26 patients died from their disease, one after a car accident. The average follow-up time was 45 months. Stage IV patients who died had an average survival time of 11 months after onset of therapy. Surviving patients have not reached the median survival rate yet and are still alive on an average of 43 months after onset of therapy. There was no relevant hematologic toxicity (WHO Grade I – II) and there was no neurotoxicity. Vital parameters such as the ability to speak or to swallow usually improved after the second or third out of five treatment cycles. The major surgical complication was the dissection of the carotid artery in three cases.

Conclusion: Regional chemotherapy for advanced cancers of the head and neck area in terms of intra-arterial infusion with chemofiltration induces rapid tumor shrinkage without relevant toxicity and substantially improves quality of life.

Biography

Karl R Aigner is Medical Director of the Department of Surgical Oncology in Medias Klinikum Burghausen (Bavaria)/Germany. He had his surgical training in cardiovascular surgery at Friedrich-Alexander University in Erlangen. At Justus-Liebig University Giessen, he specialized in surgical oncology, focusing on vascular techniques of drug delivery such as Implantofix and Jet Port Catheters, and in 1981 first performed a technique of isolated perfusion of the liver with heart-lung machine in man. Furtheron, he developed various techniques of segmental vascular isolation of body segments and organs, and the stopflow technique with adequately designed catheters. In 1982, together with Prof. Stephens from Sydney, he initiated the biannual International Congress of Regional Cancer Treatment (ICRCT) and from 1987 to 1991 was President of the International Society for Regional Cancer Therapy. From 1985 to 1998, he was Managing Editor of the *International Journal Regional Cancer Treatment*. He is author of numerous publications and book chapters, lectured and performed teaching operations on vascular perfusion techniques and oncological surgery in Europe the United States and Asia.

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