Bra 02

SERUM ZINC AND COPPER LEVELS IN PATIENTS WITH COLORECTAL CARCINOMA AND BRAIN TUMORS.

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Serum copper levels have been found to be elevated and zinc levels diminished in patients with malignant tumors. This study assessed serum zinc (Zn) and copper (Cu) levels preoperatively in patients with various stages of colorectal carcinoma and brain tumors compared to a control group with benign non inflammatory diseases. Serum zinc and copper levels were also correlated to delayed cutaneous hypersensitivity testing (DCH).
Trace element analysis was performed in triplicate by an atomic absorption spectrophotometer. The optimum wave length was 213.9 nm (Zn) and 324.8 nm (Cu).
Delayed cutaneous hypersensitivity testing was carried out using the Multitest System (Institut Mérieux).
Statistical analysis was performed with the Wilcoxon rank sum test.
The zinc values of patients with brain tumors of various stages ($\underline{n=58}/Zn=9.54\pm0.45$ µmol/l) and the colorectal carcinoma group ($\underline{60}/9.12\pm0.33$) were not different from the control ($\underline{16}/9.03\pm0.66$).
Copper values of colorectal carcinoma patients of all stages of disease were significantly increased ($\underline{60}/18.53\pm1.04/p<0.05$) compared to the control ($\underline{16}/14.61\pm1.12$) and to brain tumor patients ($\underline{58}/13.80\pm0.93$). There were no differences of the trace element values in the three multitest classes (n=58) normergic, hypoergic and anergic comprising controls and tumor patients. Elevated serum copper levels have been found in the presence of certain neoplasms in humans. In this study these findings could be confirmed in colorectal carcinoma but not in brain tumors. It remains unclear whether a correlation between delayed cutaneous hypersensitivity testing and trace element values consists or not.

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Bra 03

MONOCLONAL ANTIBODIES AGAINST HUMAN GLIOMAS

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Cell surface antigens of human brain tumors induce cellular and humoral immune responses in the host. Antibodies released by in vivo sensitised syngeneic cells bind specifically to antigenic determinants at the tumor cell surface. This effect can be used for glioma grading, diagnostic purposes and the development of therapeutic concepts.
We have produced monoclonal antibodies by fusion of spleen cells from immunised mice and mice myeloma cells. We immunised three times and boosted intrasplenally. The hybridoma cells were tested for their production of antibodies against different tumor cell monolayers using the indirect immunoperoxidase test. Producers (5%) were selected and cloned by the limiting dilution method. The specificity of the IgG antibodies MUC 1 to MUC 5 ensured on bouin-fixed and paraffin-embedded thin sections is shown in the table.

Human tissue	Murine monoclonal antibodies				
	MUC 1	MUC 2	MUC 3	MUC 4	MUC 5
Normal brain	+	+	+	-	-
Neuroblastoma	+	-	+	+	+
Adrenal cortex ca.	-	+	-	+	n.d.
Kidney carcinoma	+	-	+	+	n.d.
Astrocytoma II	+	+	+	+	+
Glioblastoma	+	+	+	+	+

These experiments show that hybridomas obtained by fusion of myeloma cells and spleen cells from hyperimmunised mice produce antibodies which bind specifically to different cell types and enable to discriminate between normal and tumor cells. The binding of an antibody to tissue thin sections fixed with bouin and embedded into paraffin proved to give a distinct and well documentable expression of its specificity.

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Bra 04

FLUOROSCOPY - A NEW BRAIN IMAGING SYSTEM

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Tumorfluoroscopy is a digital video system optimised for iodine contrast. Images are gained by permanent fluoroscopy with 48 KV and 6 mA. Four series of images are done. One before contrast application and the others one, eight and twenty minutes afterwards. 6 images are added on the cameratarget to one image in order to get sufficient brightness of the images. Again 200 of those are added to a sixteen bit image and stored for subtraction. The absorbed dose on the investigated side of the head is 0,4 R per serie (1200 images). The different series can now be subtracted from each other. Changes of the tracer distribution from arterial to venal vessels and inside the tumor can be well visualized.
We investigated 30 patients with different brain tumors. The following results and conclusions were gained: Tumor imaging can be done in each possible projection especially those for radiotherapy. The projection plane is conventional and not CT-like with horizontal slices. The tumor can be localized directly to the scull or treatment mask which is of importance for the neurosurgeons. All tumors were dedected even those which were of the same density as edema and could hardly be dedected by CT-scanning. Low grade astrocytoma accumulate the contrast medium in the second and third serie but not later than 20 minutes afterwards. Glioblastoma store the contrast preferably during the late phase of investigation. Meningiomas show intense accumulation already in the first minute and there is no decrease of the intensity during the period (30 min.) of investigation. We think that this system can be ideally used for operations of the brain as being not space consuming and less expensive than CT-equipment. Adapted to the simulator direct tumor localisation for irradiation is simple and perfect.

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Bra 05

SPONGIOBLASTOMAS:
RESULTS OF SURGERY AND RADIATION

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6 to 8% of all intracranial tumors are spongioblastomas, more recently called pilocytic astrocytomas. Between January 1978 and March 1984 we observed 45 pts with histological proven spongioblastomas. Of these 35% were localized in the posterior fossa, 27% in the brain stem, 11% in the optic chiasm, and 3% in the cerebral hemispheres. In 24% the brain stem as well as the cerebellum were involved. None had received treatment for the tumor previously.
In 14 of 19 pts (88%) with tumors in the posterior fossa, the tumor was resected totally and no radiotherapy was given. In all pts with brain stem involvement, only partial tumor resection could be performed. Of these pts 33% were irradiated postoperatively. Another 33% received radiotherapy only. Of the 5 pts with optic chiasm glioma, the tumor could be resected surgically in one case only. Two pts had postoperative radiotherapy following tumor biopsy, two others were treated by radiotherapy only.
Radiotherapy was applied by rotational or opposed field technique with a dose of 5,000 to 6,500 cGy over at last 5 weeks.
By this policy, an actuarial survival rate of 75% and a median survival time of 40 months after treatment were observed. The best results were seen after total tumor resection. After subtotal resection and postop. radiotherapy 10 of 12 (83%) survived for at least 10 to 50 months. The poorest outcome had those pts who underwent radiotherapy only.

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