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HEAT TRANSFER, TEMPERATURE DISTRIBUTION AND CONTROL IN HYPERTHERMIC ISOLATED LIMB PERFUSION.

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Hyperthermic-antiblastic perfusion treatments using high temperatures, close to the maximum tolerable limit of the order of 42 °C (true hyperthermia) require close control and high uniformity of the temperature distribution. This is the case of the limb melanoma for which randomized clinical trials are in progress according to true hyperthermal protocols (W.H.O. Melanoma Programme Trial 17, Oct. 1991). Close adhesion to basic technical criteria for heat transfer and temperature monitoring is a pre-requisite to comply with the limits (e.g. 41 to 41.8 °C). Long durations treatment (90 min.) further aggravate the temperature control requirements.

An external heating source (warm-water blanket) should be used in conjunction with the heated perfusate. Complete wrapping of the limb and thermal isolation from blanket to the surroundings are required to contain the temperature non-uniformity within a range of not more than a few degrees centigrade. Efficient heat transfer from blanket to limb is essential to keep the water temperature to a minimum (patient safety) at the same time containing the rise time from initial temperature to steady state. The temperature probes should undergo and accurate calibration checks. The results obtained in 9 consecutive recent treatments are described. All temperature lie within a narrow range of ±0.34 °C (std. dev.) centered at the center of the target interval (41.4 °C).

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INTRA-AORTIC INFUSION CHEMOTHERAPY IN ADVANCED PENILE SQUAMOUS CELL CARCINOMA

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From 1985 to 1992, 9 patients with advanced squamous cell carcinoma of the penis were treated by aortic infusion chemotherapy. The age ranged from 27 to 76 years old. The catheter (Jet Port Plus Allround) was insered retrogradely through the lateral circumflex artery into the abdominal aorta. The catheter tip was placed at about the level of third lumber vetebra. Continuous aortic infusion with methotrexate 50 mg/24h using a portable pump and simultaneous intramuscular injection of citrovorum factor 6 mg/6h were given for a mean of 9 days. Five patients achieved complete remission. They are living disease-free 86, 80, 50, 33, 16 months (Feb. 1993). For young patient, post-infusion evaluations including semen analysis, rigiscan for erectile function and duplex sonography for penile blood flow all revealed no abnormal changes. This therapeutic modality is simple and effective with the unique advantages of anatomical and functional preservation not only of the external genitals but also the reproductive organs.

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SINGLE-USE PERITONEAL DIALYSIS CATHETERS FOR INTRAPERITONEAL CHEMOTHERAPY INSTEAD OF THE SEMIPERMANENT/PERMANENT TENKHOFF CATHETERS

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To avoid inflow or outflow failures and the risk of infection of the Tenkhoff catheters,acute peritoneal dialysis catheters(Peritocat-Braun Melsungen AG),were used to deliver intraperitoneal chemotherapy.13 patients with small-volumen peritoneal carcinomatosis of different origens were treated with intraperitoneal carboplatin or cisplatin.The drugs were administered in 2 liters of 0.9% NaCl.59 cycles were administered with the corresponding catheters insertions.Despite previous extensive laparotomies,there were no insertion related complications(perforation or bleeding).There were no inflow or drainage problems.With the removal of the catheter immediately after the passage of the drug,there was no risk for abdominal or exit-site infection.

Conclusion:The described procedure is a safe method for the delivery of intraperitoneal chemotherapy.

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PREPARING INDIVIDUAL DOSES OF CYTOTOXIC DRUGS IN INFUSION BAGS

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Preparation of individual intravenous cytotoxic drug doses comply to the GMP-guidelines of the European Pharmacopoeia and national prescriptions for handling cytotoxic drugs.
The concept is applied in the two largest departments of oncology/haematology in Denmark - Odense and Aarhus.
Plans show clean rooms (class 10.000) with LAF-safety cabinets (class 100) and airpressure conditions inside and outside the clean room.
During demonstrations on portable PC's a print shows full documentation for each preparation via the especially developped software PROCYON.
Safetymeasures for producing staff are shown in series of pictures.
Examples from a unique requisition/controlsystem are presented.

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CIRCADIAN MODULATED CONTINUOUS INFUSION OF FUDR IN PATIENTS WITH DISSEMINATED RENAL CELL CANCER (RCC).

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Patients (pts) with bi-dimensionally measurable progressive disseminated RCC were eligible for this study. Treatment with FUDR (floxuridine) was initiated as a circadian modulated continuous infusion for 14 days every month using a portable infusion pump. Starting dose of FUDR was 0.15 mg/kg/day with a dose escalation of 0.025 mg/kg/day every course until toxicity. FUDR: 70% of the daily dose from 8 PM till 2 AM and 30% from 2 AM till 8 PM. Sofar 17 pts entered the study; median age 63 yrs (42-72). All pts had a performance status (WHO) of ≤ 2, WBC ≥ $4.0x10^9$/L and platelets ≥ $100x10^9$/L. Fifteen pts are evaluable for response. Two pts were not evaluable, one because of early progression, the other refused further therapy. One pt (7%) had a partial response with a duration of 23 months, 4 pts had progressive disease after 2 courses and 10 pts had stable disease for a median duration of 4.5 months (3-22). A total of 126 courses was given, median 5 (1-22). Due to the escalation schedule, 71% of the pts developed toxicity, which was 23% of all given courses. Toxicity: nausea grade I in 4/17, grade II in 1/17, grade III in 2/17, diarrhoea grade I in 5/17, grade II in 1/17, leucopenia grade I in 2/17, grade II in 1/17, grade III in 1/17, mucositis grade I in 1/17 and hand-foot syndrome in 1/17. The maximum dose of FUDR was 0.35 mg/kg/day. Conclusion: The response rate of 7% (95% CI;1-32%) is low. There seems to be no dose-response relation.

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THE WEEKLY 24-HOUR INFUSION CHEMOTHERAPY USING ADMIXTURE WITH CISPLATIN+5FU+LEUCOVORIN+VP-16+BLEOMYCIN+EPIRUBICIN FOR THE ADVANCED CARCINOMA OF CERVIX, BREAST AND HEAD & NECK---THE APPLICATION OF THE RADIOBIOLOGICAL PRINCIPLES OF FRACTIONATION AND LOW-DOSE-RATE

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The radiobiological principles of fractionation and low-dose-rate are applied to try to create a low-tox-icity and high-effectiveness chemotherapeutic regimen. This regimen uses an admixture with cisplatin 20mg/M^2, 5FU 500mg/M^2, leucovorin 65mg/M^2, VP-16 70mg/M^2, bleomycin 10mg/M^2 and epirubicin 20mg/M^2. It is given as 24-hour infusion and repeated once a week. The portable infusion pumps are used for the outpatient treatment. Each patient must receive operation for the implantable venous access port before chemohtherapy is started. The total patient number is 37, including 13 cervix with 4CR and 9 PR, 10 breast with 2 CR and 8 PR, and 14 head & neck with 1 CR and 13 PR. No grade II or higher toxicity were observed. The preliminary result seems good with excellent 100% reponse rate, low toxicity and the convenience in the outpatient treatment.