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POSTER

CMF hepatic toxicity can be reduced by SAME (S-adenosyl-L-methionine) administration

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Aim: CMF regimen can induce hepatic toxicity in breast cancer patients (pts). Liver injuries may present as elevation of transaminases and are responsible for treatment delay in some cases. Aim of present study is to verify the efficacy of SAME (intermediate agent in the transmethylation-transsulfuration pathways) for reducing the hepatic toxicity due to CMF regimen.

Methods: 22 pts (median age 52 years; range 41 to 71) with early breast cancer, treated with CTX, MTX, 5FU (600, 40, 600 mg/m²) given i.v. on days 1 and 8 every 4 weeks, presented AST and ALT elevation. 12 (54%) G1, 6 (27%) G2, 4 (22%) G3; 2 (9%) presented also increase of bilirubin (1.4 mg/dl). In 12 pts (76%) the elevation became evident before the third course. All the enrolled pts received 500 mg/day of SAME by i.m., for ten days, starting the first day of each subsequent course. Ultrasound scan and laboratory tests excluded liver alteration, concomitant functional liver abnormality or risk factors for liver disease.

Results: 15 (67%) pts presented an evident AST/ALT reduction: 12 (54%) normal AST/ALT value and 3 (13%, 2 G2 and 1 G3) value double than normal. A dose reduction was necessary in the SAME non responders patients (6%) while no reduction was done in responders. Treatment delayed was recorded in 9% of non responders pts and in 1% of responders.

Conclusion: This study provides evidence of SAME capacity to reduce the increase in liver enzymes caused by CMF. We continue to accrual pts in order to better define the therapeutic response of this treatment.

Toxicity reduction

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POSTER

Fructose-1,6-bisphosphatase and albumin: highly sensitive molecular markers for early detection of radiation nephropathy

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Purpose: To date, early acute radiation nephropathy has not been detectable since damaging events occur only at a subclinical cellular level. Nevertheless, initial cellular deterioration may indicate possible late-effects leading to chronic disease i.e. hypertension or renal failure. In order to detect nephron-specific cellular lesions due to irradiation, fructose-1,6-bisphosphatase (FBP), a key enzyme of gluconeogenesis present only in the liver and in the proximal tubulus of the kidney, together with albumin, an already established marker of glomerular damage, were determined in the urine of abdominally irradiated cancer patients with parts of the kidney in the treatment field.

Methods: Prior to treatment renal function of each patient (n = 30) was assessed by determination of GFR and ERPF. Mid-stream urine of patients was collected daily during treatment; albumin and the specific enzyme activity of FBP were measured photometrically and related to urinary creatinine concentrations to take into account the influence of different urinary flow rates.

Results: Depending on the irradiated cortical kidney volume and duration of treatment increasing urine levels of FBP-activity and albumin concentration were observed to be up to 10-fold the amount determined in the control group (n = 30). Patients which already showed a strong increase of both markers in the early phase of treatment were individually replanned in order to spare the maximum amount of kidney volume. After re-planning, FBP and albumin values decreased continuously during the remaining treatment period indicating a successful prevention of further radiation induced cellular damages in the glomerular and tubular compartment.

Conclusion: The determination of fructose-1,6-bisphosphatase (FBP) and albumin in the urine of abdominally irradiated cancer patients with parts of the kidney in the radiation field allows for the first time to monitor these initial reactions of tubular and glomerular cells, respectively, thus allowing to prevention of late-effects by individual alterations of the treatment schedule.

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POSTER

Prevention of Chemotherapy-induced alopecia by the new digital scalp cooler device

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Alopecia is the most distressing side-effect of cancer chemotherapy treatment. The well known chemotherapeutic medication that cause total hair loss are: Anthracyclin, Taxanes and Etoposide. Since 1997 we were studying an effective digital scalp cooling system, the Triple-C[®] system, for the prevention of chemotherapy-induced alopecia in 127 patients receiving chemotherapy. We advised all the patients to cut off some of their hair before starting chemotherapy for better transmission of cold to the scalp. The chemotherapeutic regimens, including one of the following major alopecia-causing regimens: Group I [14 patients] (Paclitaxel-Carboplatin regimen); Group II [12] (Docetaxel-Carboplatin regimen); Group III [16] (Docetaxel-Doxorubicin); Group IV [45] (Doxorubicin-Cyclophosphamide regimen); Group V [40] (Cyclophosphamide-Methotrexate-5FU). The dose of Paclitaxel was 180 mg/m², for Docetaxel was 80mg/m², for Doxorubicin was 60mg/m², for cyclophosphamide was 500 mg/m², and for methotrexate was 50 mg/m². Triple-C scalp cooler was used for 1/2 hour before, during and 2 hours after IV injection of chemotherapy. The temperature of the scalp cooler was maintained at 2-4 degrees C. We used our unique grading system for alopecia (5 grades), with grade 0, 1 and 2 are considered beneficial effect while grade 3-5 are unsatisfactory results. Prevention of grade 3-5 alopecia was achieved in 87.4% (111 patients) of all cases. In group I, II and V there was 100% protection of hair loss. In-group III and IV there was 73.8% (45 patients) protection of hair loss. Sixty % of patients developed alopecia was older than 65 year old, while 20% of them had very dry and curly hair before starting chemotherapy. Follow-up (median time 14 months) has disclosed no scalp metastases. The digital Triple-C scalp cooler system with its firmly fit stretchable cap is well tolerated and very effective in prevention of grade 3 and more alopecia.

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POSTER

Some factors determining dynamics of changes of circumferences of upper limbs during 5-week intermittent pneumatic compression in women with postmastectomy lymphoedema

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Purpose: The aim of the study was evaluation of dynamics of changes of circumferences of upper limb during 5-weeks intermittent pneumatic compression (IPC) in women with postmastectomy lymphoedema depending on age, size of oedema, time of duration and consistence. It was assumed that reduction of circumferences will be greater and faster in young women, with minimal, short-lasting and soft oedema.

Methods: Circumferences on 10 levels of upper limbs were measured in 147 women aged from 34 to 77 years before and after each week of IPC due to postmastectomy lymphoedema. Differences of averages circumferences between oedematous and non-oedematous limbs were calculated. IPC was applied daily for 5 weeks.

Results: After six weeks of IPC differences of circumferences between oedematous and normal limb decreased statistically significant in all groups (p=0,001) of 0,6 ± 1,6 cm depending on the type of oedema, except women which had oedema lasting longer than 3 years. Essential reduction of circumferences was stated as early as after third week of IPC in women with soft oedema of 0,5 cm (p=0,006), short-lasting oedema of 0,6 cm (p=0,02), minimal of 0,5 cm (p=0,000), moderate of 0,6 cm (p=0,001) and severe oedema of 1,4 cm (p=0,04). During the following weeks of IPC the decrease of circumferences was considerably smaller (of 0,1-0,2 cm only). Differences of decrease of circumferences between women in different age, consistence of oedema and time of its duration were not statistically significant. Only reduction of circumferences of upper limbs were statistically significant greater in women with minimal and moderate oedema than with severe oedema (p=0,004).

Conclusion: Dynamics of changes of circumferences of upper limbs was extreme during the first third weeks of IPC in women with soft, short lasting and minimal oedema. This dynamics was statistically independent of age of women, consistence of oedema and time of its duration. Dynamics of decrease of circumferences was dependent on size of oedema.