

on venous anatomy, vein wall movement with the respiratory cycle and blood flow within the vein.

Results: Lymphoedema (>10% relative arm volume increase) was observed in 16% of cases at 3 months and 11% at 12 months. There was a significant reduction in the 'pulsatility' of venous flow in the lymphoedema group compared with the rest. Vein wall movement was significantly reduced following surgery, but this did not correlate with arm swelling. Obvious stenosis of the vein was demonstrated in 10% of cases and was associated with an increased risk of lymphoedema, but was also observed in the absence of arm swelling.

Conclusions: Axillary node clearance may cause changes in the axillary vein, with a significant association between altered flow and risk of lymphoedema. Venous stenosis can be observed in the absence of arm swelling, reinforcing the multi-factorial nature of this condition.

307

POSTER

Late cardiac and pulmonary complications in breast cancer patients after adjuvant chemo-radiotherapy – 5-years follow-up

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Aim: The aim of the study was to evaluate late myocardial and pulmonary damage in breast cancer patients, after mastectomy and adjuvant sequential chemo-radiotherapy.

Material and Methods: Forty seven women with stage II and III breast cancer, mean age 47 years, had mastectomy and sequential chemo-radiotherapy. In 40 patients (pts) chemotherapy with anthracyclines and in 7 – without anthracyclines was administered. Radiotherapy included chest wall and regional lymph nodes, the specified dose was 45–50 Gy/2 Gy. The high resolution computed tomography (HRCT) of the lungs, electrocardiography and echocardiography were performed after a mean time of 17 months, then, after a mean time of 33 months and finally, after a mean time of 65 months. The third examination was possible in 37 pts because of progression of the disease and death in 10 pts.

Results: LUNGS: The first examination (after 17 months) revealed no changes in 24 pts (51%). There were fibrotic changes in lung apex in 19 pts and 19 parietal fibrosis. In the second examination (after 33 months) the normal findings were observed in 24 patients (51%). A tendency to regression in parietal areas was observed ($p=0.031$). In third examination (after 65 months, 37 pts), the same percentage of pts – 51% had no lung injury. The lung fibrosis was observed in 14 and parietal – in 13 pts. Twelve of parietal fibrosis observed in third examination persisted without any evolution (no progression, no regression), only 1 progressed. All these changes were discrete and asymptomatic and parietal fibrosis were invisible in chest X-ray. HEART: In first examination 7 of 47 pts had abnormal echocardiogram (ventricular dilatation, abnormal Left Ventricular Ejection Fraction). All of them received anthracyclines. In 5 of them echocardiographic defect were asymptomatic and reversible at the time of second examination, in 2 – moderate toxicity was noted. The analysis of isodose distribution in all 7 cases excluded radiotherapy as a factor influencing toxicity, but the type of echocardiographical changes suggested that anthracyclines could cause injury. After 65 months, no new cardiac complications were observed and the improvement in echocardiography in 6 patients was observed (1 patient died because of disseminated disease).

Conclusions: Modern postoperative radiotherapy caused no clinically significant lesions in lung and heart during 5 years of observation. Clinically important myocardial changes, observed in 2 pts, seemed to be caused by anthracyclines, but not by radiotherapy.

308

POSTER

The influence of trastuzumab and chemotherapy combined treatment on valvular, systolic and diastolic cardiac function in metastatic breast cancer patients – 30 months follow up

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Purpose: to assess long-time cardiotoxic risk of treatment with trastuzumab and chemotherapy in metastatic breast cancer patients.

Patients and methods: 29 patients: 12 treated with combination of trastuzumab 2 mg/kg 1-weekly and chemotherapy consisting of docetaxel 75 mg/m² and cisplatin 75 mg/m² every 3 weeks and 17 treated with combination therapy of trastuzumab and cisplatin or vinorelbine or capecitabine were evaluated clinically, by ECG and by Doppler echocardiography at baseline (I), in 2nd (II), 4th (III), 6th (IV) month of chemotherapy and up to 2.5 year follow-up (V) thereafter. Valvular function, resting left ventricular ejection fraction (LVEF), LV and LA diameters, diastolic and systolic LV function were determined. 20/29 patients were

anthracycline pre-treated to median cumulative dose 380 mg/m², 5/29 of patients were irradiated previously to chest wall.

Results: trace mitral insufficiency (MI) was observed at baseline in 12 patients, in 2 patients MI was moderate. During treatment there was progression of pre-existing MI from trace to moderate in 4 patients. A new significant MI occurred in 2 patients. MI did not progress in 8 pts and two cases of baseline significant MI did not show important progression upon observation. 3 pts presented trace aortic insufficiency (AI) at baseline, one of them progressed during follow-up. No statistically significant changes were found for mean left ventricular ejection fraction (LVEF): I – 66%, II – 67%, III – 68%, IV – 67%, V – 68%, mean LV end-diastolic diameter (LVED) I – 44 mm, II – 46 mm, III – 46 mm, IV – 46 mm, V – 47 mm, mean isovolumetric relaxation time (IVRT) I – 93 ms, II – 91 ms, III – 86 ms, IV – 87 ms, V – 93 ms, mean LA diastolic dimension (LA) I – 36 mm, II – 38 mm, III – 36 mm, IV – 37 mm, V – 36 mm. In three cases asymptomatic moderate global hypokinesia was observed (EF – 49–59%).

Conclusion: echo-doppler imaging during trastuzumab and chemotherapy combination treatment revealed progression of mitral and aortic regurgitation in some patients. The changes of other parameters do not substantiate an important deterioration of LV systolic and diastolic function. The results of three-years follow-up will be presented.

309

POSTER

Appropriate solution selection at the administering epirubicin hydrochloride to the breast cancer patients

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Backgrounds and Objectives: Epirubicin hydrochloride (Farmorubicin®) is one of the key drugs in the treatment regimen for the breast cancer patients. In Japan, we had normally used the powder type because of easy to stock. From September 2002, when the pharmacists started to prepare the anticancer drugs at the time of building of teamwork system supporting the breast cancer patients, we have chosen to use the Farmorubicin RTU® (ready to use). Then the frequency of vascular pain during the administering the drug and vasculitis has been increased. This narrative experiments made us the chance to consider the cytotoxicity of epirubicin in order to avoid angitis and soft tissue damage. Following 3 factors: pH, osmotic pressure, titrable acidity are considered to affect onset of angitis and vasalgia. There is difference of pH between RTU (pH 2.5–3.5) and powder (pH: 4.5–6.0). The purpose of this study is to select the best solution in order to administer vesicant safely via peripheral in order to minimize risk of soft tissue damage.

Methods: Osmotic pressure, titrable acidity and pH of solution with epirubicin actually used in the clinical setting were measured. Five kinds of solutions (normal saline, 5% glucose, distilled water, 2 hypotonic solutions) with or without 2 kinds of pH epirubicin (RTU or powder) were chosen and measured, respectively. We have aimed at the dexamethasone (Decadron®) to minimize the risk of those adverse events.

Results: Osmotic pressure of RTU was lower rather than powder type. The difference in the titrable acidity among the combination of solution and two kinds of epirubicin was estimated quite tiny. So then, the pH of solution was mostly concerned with onset of angitis. Both in the cases we selected 0.9% sodium chloride and 5% glucose solution, the pH of the Farmorubicin RTU® increased from 3.5–4.0 to 6.0–6.2 by adding Decadron® 8 mg, which was not observed the onset of deposit during 24 hours. On the other hand, pH of freeze-dried Farmorubicin® plus Decadron® 8 mg increased until 6.9–7.1, which was onset of deposit. We have started to use the combination of Farmorubicin RTU® and Decadron® at the administration of FEC regimen for breast cancer patient from May 2003, we have only one case with angitis and vasalgia among 24 patients underwent FE(75–90)C chemotherapy.

Conclusions: Farmorubicin RTU® is considered to be easy to use and safety for medical staff at the view of the preparation of agents. But the frequencies of the angitis and vasalgia have been increased because of lower pH. To minimize the risk of tissue damage, this study puts forward a suggestion that the regimen combined Farmorubicin RTU® with Decadron® should to be selected especially at the treatment via peripheral vessels.