

# EM-X Therapy in Breast Cancer

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## Abstract :

A prospective study on the role of oral EM-X in the management of breast cancer patients was carried out at Cancer Research Foundation of Pakistan. The study was conducted over a period of 30 months and included 173 patients from 1997-1999.

Patients were divided into four groups which included patients with locally advanced disease, patients with metastatic disease, patients with inoperable carcinoma and patients receiving normal treatment for cancer. There was a control group of cancer patients receiving normal regular treatment but not EM-X.

The parameters used included the work status, improvement in symptoms like bone pains, breathlessness, appetite and general health. Total leukocyte count and differential leukocyte count was done before and after receiving EM-X. During the study it was found that there was marked improvement in work status. General health and appetite showed improvement. Some patients showed an increase in absolute lymphocyte count.

We recommend the use of oral EM-X for improvement in work status, general health and appetite as well as for improvement of symptoms. This effect is perhaps mediated by the lymphocytosis, caused by EM-X.

**Key Words :** Cancer Breast EM-X

## Introduction :

Every day at the O.P.D. of Cancer Research Foundation of Pakistan, we see about 50 patients with breast complaints. Out of these 10-15 patients undergo biopsy resulting in diagnosis of Cancer in 3-5 patients. A very high and alarming rate indeed.

These patients undergo the standard multimodality treatment for breast Cancer. It includes Surgery, Chemotherapy, Radiotherapy and Hormone therapy. These patients undergo simple or modified simple mastectomy with axillary clearance or sampling. They receive chemotherapy as peri or post-operative treatment. We use CMF for post menopausal patients and FAC or FEC for pre menopausal patients. This is followed by local radiotherapy and hormone therapy as and when indicated. In spite of all these treatment modalities and sometimes because of it these patients undergo lot of suffering. They have both physical and physiological problems as well as social problems. They find it increasingly difficult to carry on with their routine work. Emotionally they are very low. Their appetite is down and the symptoms like pain and breathlessness keep on recurring. Lot of patients after chemotherapy have fungal infection and hyperemesis.

We learned from Japan about EM-X and its role as an anti-oxidant and as an immunomodulator. The oxidation by free radicals result in peroxidation of lipids causing damage to membranes of organelles and cells. It leads to cross linking of proteins, inactivation of enzymes and interaction with nucleic acids causing mutation. It all results in aging and diseases like cancer.

Body has been armed with endogenous antioxidants which serve as defence mechanisms. These include superoxide dismutase, glutathione synthetase, glutathione peroxidase, glucose-6-phosphatase dehydrogenase, catalase and serum proteins like albumin, ceruloplasmin and transferrin<sup>1</sup>.

The exogenous anti oxidants help this defence mechanism. These include Tocopherol Vitamin E, Ascorbic acid Vitamin C, Sulphydrals like cysteine and glutathione and trace metals which help dismutases in antioxidation and EM-X.

EM-X scavenges 49% of free radicals within 200 seconds from the blood stream<sup>2</sup>. It also helps NK cells by increasing their number and functional capability<sup>3&4</sup>. The potential of EM-X is increased by taking brown rice vegetables and seaweed.

Foods unsuitable for consumption in patients having EM-X include foods derived from animals and foods contaminated by additives, pesticides and chemical fertilizers.

Keeping all these things in mind a single blind prospective study was planned at the Cancer Research Foundation of Pakistan to see the effect of EM-X on breast cancer patients.

## Materials and Methods :

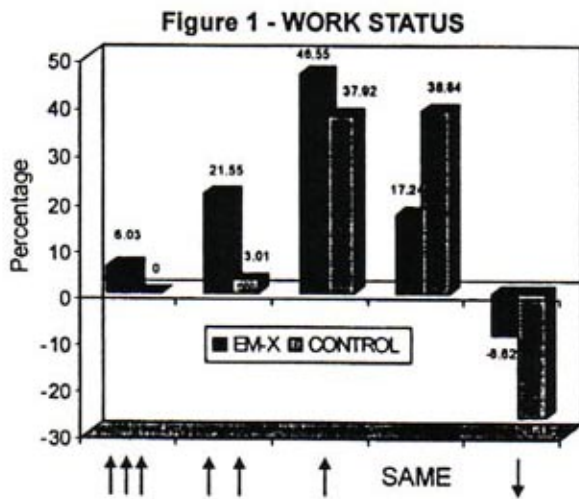
The study was carried at Cancer Research Foundation of Pakistan. The patients receiving EM-X were divided in 3 groups. Group I included the patients who had advanced Ca breast receiving EM-X after the standard treatment. They were 116 in number.

Patients in Group II were those patients who had metastases of Cancer Breast. There were 49 patients in this group. Group III comprised of those patients of breast cancer who had such an advanced degree of disease that they could not be operated upon, this included 8 patients.

A control group of 65 patients was also formed. These patients had locally advanced Breast cancer who received standard treatment but no EM-X. All these patients were randomised. The patients receiving EM-X were given 5 ml orally for first ten days and then 10 ml orally subsequently. The patients were followed up at fortnightly intervals. They were entered on a proforma designed for the purpose and



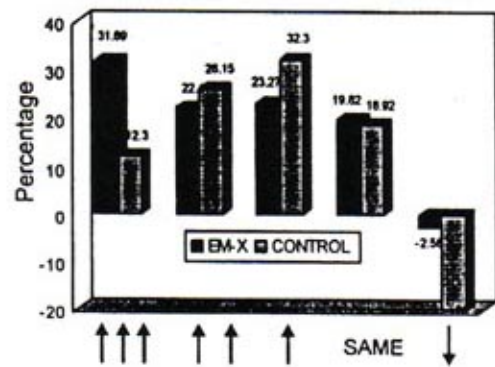
their progress was recorded at every follow up visit. The parameters recorded were Work status, (figure-1).



Emotional well being (figure-2), Appetite (figure-3) and

symptoms like pain and breathlessness (figure-4). Every

Figure 4 Symptoms (Pain, Breathlessness)



patient had her DLC and TLC after 4 weeks and it was recorded. The patients were also examined for signs of fungal infection.

Results :

Patients included in the study were between 20-75 years (table – 1). Majority of the patients were in the

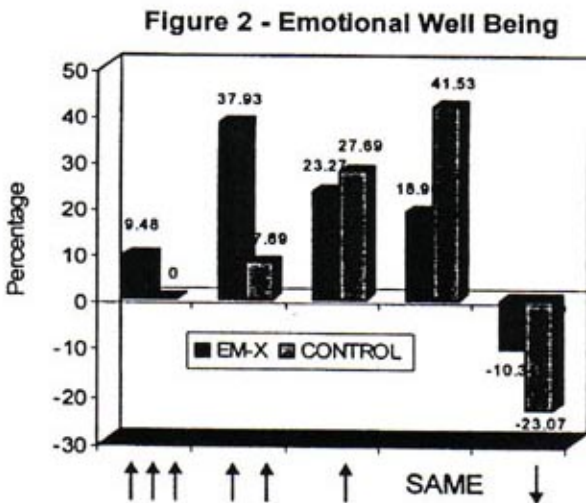


Figure 3 - Appetite

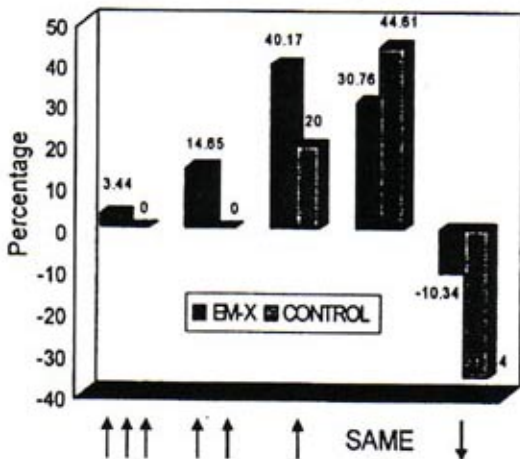


Table 1 Age Distribution : Study Population

Age Group (years)	Em-X Group		Control Group	
	No.	%	No.	%
20 – 29	13	11.20	12	18.46
30 – 39	47	40.52	25	38.47
40 – 49	32	27.59	18	7.69
50 – 59	14	12.07	6	9.23
60 – 69	6	5.17	3	4.61
> 70	4	3.45	1	1.54
Total	116	100.00	65	100.00

Mean ± SD 46.84 ± 8.37 39.76 ± 11.24

age group 30-39. The mean age of the patients receiving EM-X was 46.84 + / - 8.37. The mean age of the patients in control group was 39.76+ / -11.24.

The EM-X group showed 74.13% improvement in work status as compared to 22.4% in control group (table 2). It is statistically highly Significant i.e. P<0.001.

Table 2 – Improvement

Symptoms / Signs	Em-X Group	Control Group	Difference
Work Status	74.13	22.4	Highly Significant*
Emotional well-being	70.68	19.83	Highly Significant
Appetite	58.6	41.38	Significant**
Symptom (Pain, Breathlessness)	77.59	70.77	Non Significant**
Increase in TLC	82.76	-	Highly Significant
Fungal Infection	-	10.77	Highly Significant

All figures represent percentages.

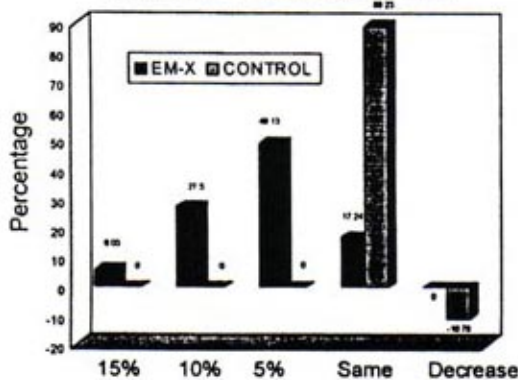


\*<0.001 \*\*P<0.05>0.001 \*\*\*P > 0.05

70.68% of the patients in EM-X group showed improvement in emotional well being as compared to 19.83% which is highly significant, P<0.001.

58.6% of EM-X group showed improvement in appetite whereas 41.38% showed improvement in the control group, statistical significance is P<0.50> 0.001., which is Significant. Improvement in symptoms was non significant, for EM-X group it was 77.589% as compared to 70.77%. P was more than 0.05. Increase in TLC was 82.76% in EM-X group, whereas it was 0% in control group P<0.001, highly significant (figure-5). 10.77% in

Figure 5 - Increase in TLC



control group had fungal infection P, 0.001 highly significant statistically.

The group with metastases had 49 subjects in the group. Age group was 20-80 years. Mean age was 47.86+ / -13.93 years. 77.49% showed improvement in work status (table 3). Emotional well being improved in 63.16%.

Table 3  
Improvement Status : Group With Metastasis

No. of Subjects	49
Age	
Range	20 – 80 years
Mean ± SD	47.86 ± 13.93 years
Work Status	77.49 %
Emotional well-being	63.16 %
Appetite	65.29%
Symptoms (Pain, Breathlessness)	59.77%
Increase in TLC	81.62%

65.29% showed improvement in appetite. Symptoms improved in 59.77%. 81.62% showed an increase in TLC. There were 8 patients in inoperable group, the age ranged from 30 to 77 years. The mean age was 52.5 + / -2.8 years. 74.13% showed an increase in work status. Emotional well being improved in 70.68%. Symptoms improved in 77.59%. 82.76% showed as increase in TLC.

Discussion

Breast cancer is a disease which has attained alarming proportion in our society. The standard treatment of Surgery alongwith Chemotherapy and Radiotherapy and Hormone therapy is the mainstay of treatment<sup>5</sup>. In recent years immune modulation has found a vital role in the management of cancer patients<sup>6</sup>. The efficacy of standard treatment and further prognosis of breast cancer patients depends mostly on the stage of disease at the time of presentation<sup>7</sup>.

Patients with advanced breast cancer disease have a poor quality of life. They have psychological and emotional problems along with a decreasing ability to carry on with their routine life.

The role of free radical injury and oxidation in the pathogenesis of cancer can not be over emphasized. The role of anti-oxidants both naturally occurring in the human body system and elsewhere in reducing the impact of this injury is wellknown and is now-a-days being used in different treatment modalities.

EM-X is an anti-oxidant which has been derived from micro-organisms. It is also an immune modulator. It has been shown to scavenge 49% of free radicals within 200 seconds from the blood stream. It also helps Natural Killer cells by increasing their number and functional capability.

A total of 173 patients with carcinoma breast were given EM-X. The patients were divided in three groups according to the stage of their disease. 65 patients were placed in the control group. After carrying out the study and compiling the results it was found that there was statistically significant improvement in work status, emotional well being, appetite and total leucocyte count. There was a significant decrease in fungal infections. However there was an improvement in symptoms in patients with metastases and advanced inoperable breast cancer.

Conclusion :

EM-X is effective in relieving symptomatology, improving the work status and emotional status. It increases the total leucocyte count and prevents fungal infection thus EM-X improves the quality of life.

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KHALIDA USMANI

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