



Chemo-Immunotherapy Side Effects in Patients with Breast Cancer Referred to Outpatient Clinics in Tehran, Iran

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(Received 10 Nov 2021; accepted 25 Nov 2021)

Dear Editor-in-Chief

Chemotherapy and immunotherapy are associated with various serious and non-serious side effects. Patients may suffer a significant amount of treatment-related adverse events because of the treatment regimens (1). A timely diagnosis of these complications can help to accept treatment and prevent drug dosing and forced discontinuation of treatment (2).

Few studies have been performed in this regard in Iran so a cross-sectional study was employed to investigate the immunotherapy side effects.

Overall, 66 patients with breast cancer, undergoing chemotherapy/immunotherapy referred to clinics of Valiasr Hospital and Baqiyatallah Hospital, Tehran, Iran because of availability of samples, participated in this study. Two questionnaires were used including demographic/clinical information questionnaire and side effects scale was developed by the use of items in the CTC/AE.

Permission was obtained from the Institutional Review Board (IRB) of Valiasr and Baghiatallah hospitals to distribute and fill the questionnaires. Confidentiality of patient's information and informed consent were considered in this study (version 4.0) (3).

Twenty-three (34.84%) of patients had done radiotherapy. The base line characteristics of enrolled cases are summarized in Table 1. In the present study, 39.39% of the patients were treated by immunotherapy (Herceptin, Rituximab and pertuzumab). The minimum and maximum duration of treatment was 3 and 240 months respectively. The most common complications were respectively in the general body, digestive system and nervous system. Side effects of immunotherapy were managed by adding adjuvant drug therapy in all the patients. Chi-square test showed chemo-immunotherapy regime only had a significant relationship with digestive system ($P=0.49$).



Table 1: Demographic and clinical characteristics in the patients

<i>Variable</i>	<i>Values</i>	<i>N (%)</i>
Age (yr)	25-35	6(12)
	36-45	9(18)
	46-55	10(20)
	56-65	17(34)
	66≤	8(16)
Sex	Women	65(98.5)
	men	1(1.5)
Education	Illiterate	3(4.5)
	Primary	13(19.7)
	Secondary	8(12.1)
	High	31(47)
Marital status	College	11(16.7)
	Single	2(3)
	Married	57(86.4)
	Divorced	1(1.5)
Location	Widow	6(9.1)
	Tehran	48(72.7)
	Other cities	18(27.3)
Economic status	Good	6(9.1)
	Moderate	48(72.7)
	Bad	12(18.2)
Stage	IIA	2(4.3)
	IIB	39(59.1)
	IIIA	7(10.6)
	IIIB	3(4.5)
	IIIC	3(3)
Metastasis status	IV	8(17.4)
	Yes	11(16.7)
	No	55(83.3)
Metastasis location	Far lymph nodes	2(3)
	Liver	2(3)
	Lung	1(1.5)
	Bone	1(1.5)
	Liver-Bone	4(6.1)
Chemo/immunotherapy regimen	Lung-Bone	1(1.5)
	(Adriamycin-Endoxan)	8(12.1)
	(Adriamycin-Endoxan-paclitaxel)	21(31.8)
	(Adriamycin-Endoxan-paclitaxel-Herceptin Rituximab)	1(1.5)
	(Adriamycin-Endoxan-paclitaxel-Herceptin)	11(16.7)
	(Paclitaxel-Herceptin-Pertozomab)	5(7.6)
	(Herceptin-carboplatin-paclitaxel-Pertozomab)	3(4.5)
	(Adriamycin-Endoxan-paclitaxel-zometa)	5(7.6)
	(Adriamycin-Endoxan-Herceptin)	2(3)
	(Adriamycin-Endoxan-paclitaxel-zometa-Herceptin)	4(6.1)
	(Endoxan-paclitaxel-Docetaxel-Letrozole)	4(8.7)
	(Carboplatin-Taxol)	2(3)
Number of a chemotherapy course	1	7(10.6)
	2	22(33.3)
	3	7(10.6)
	4 or more	30(45.5)
Duration of treatment(month)	19.77±33.99 mean(SD)	
Total	66(100)	

Twenty six side effects (Digestive system: Nausea & vomiting, Diarrhea, Constipation, Anorexia, Mucositis, Gastro esophageal, reflux; Nervous System: Headache, Dizziness, Neuropathy, Seizure; General body: Weakness & Fatigue, Edema, Muscle pain; Hematologic, Anemia, Neutropenia, Thrombocytopenia; Skin and hair: Hives, Skin rashes, Alopecia, Nail loss, Nail ridging; Reproductive system: Vaginal inflammation, Irregular menstruation, and amenorrhea; Others: Low blood pressure, Dyspnea, Hiccup, Sore throat) (22 clinical questions and 1 additional question (other) with 4 reported side effects) experienced by these patients and all the patients reported at least one side effect in the courses of chemotherapy. In the digestive system, vomiting and anorexia; in the nervous system, headache and dizziness. In general side effect, weakness and fatigue; in the hematologic system, anemia; in skin and hair, alopecia; and for others, low blood pressure and dyspnea were reported by the patients.

Headache and dizziness were other adverse events in the present study. Sometimes, there were episodes of transient headache and dizziness in breast cancer women following the use of trastuzumab (4). Furthermore, chemotherapy drugs cause fatigue and oxidative stress in cancer patients (5).

In the present study, the most side effects of the hematologic system were anemia and, in the skin, and hair part in the questionnaire, alopecia was the most common complaint in breast cancer patients after chemotherapy. Anemia and hair loss were considered among distressing problems in cancer patients (5).

Finally, for other side effects, low blood pressure and dyspnea were reported by the patients in the current study. In a study, twenty-five percent of patients during courses of chemotherapy had dyspnea (6).

Chemo-immunotherapy drugs have many side effects for patients and some of side effects are controlled by adjuvant drug therapy. The knowledge of the patients, their families and

health care providers should be increased by educating about the side effects to improve management of them.

Acknowledgements

The authors thank the hospital staffs, Prof. Dariush Farhud, Mr. Keumars Alipanah, Ms. Mojgan Roomi, Mr. Ali Sobhani, and Dr. Saadat.

Conflict of interest

The authors declare that there is no conflict of interests.

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