

Predicting Physical Well-Being after Bone Marrow Transplantation in Patients with Acute Leukemia Based on Perceived Social Support

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Article information	Abstract
<p>Article history: Received: 12 Nov 2011 Accepted: 7 Dec 2011 Available online: 16 Oct 2012</p>	<p>Background: The present study focused on investigation perceived social support in predicting physical well-being after bone marrow transplantation (BMT) in patients with acute leukemia.</p>
<p>Keywords: Physical well-being Bone marrow transplantation Acute leukemia Perceived social support</p>	<p>Materials and Methods: Pre-BMT, psychosocial data were gathered on 58 patients (38 men and 20 women) between 18-45 years that selected during 13 months via census procedure. Then, physical well-being was followed up one, two and three months post-BMT.</p>
<p>*Corresponding author at: Department of Health Psychology, Karaj Islamic Azad University, Karaj, Iran. E-mail: sh_so90@yahoo.com</p>	<p>Results: Results showed that some of dimensions of perceived social support predicted physical well-being after BMT.</p> <p>Conclusion: In general, Attention to psychosocial factors prior to BMT and during recovery appears critical for physical well-being.</p>
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Introduction

Social ties and relationships with others have long been regarded as emotionally satisfying aspects of life [1]. Social support may work by giving people much-needed feelings of optimism, self-esteem, hope, and personal control [2]. Therefore, we can say that health is dependent to social support, as people with social support have more mental and physical health [3]. People who can express their emotions about having cancer report less stress than who aren't able express these emotions, and make they fewer appointments for cancer-related health problems. These findings suggest one reason why people with cancer who attend social support groups show better psychological adjustment and in some cases even longer survival [2].

Researches indicate, individuals with high levels of social support are more likely to use health care services and adhere to medical regimens. Also, the absence of social companionship such as that provided by marriage or friendship is likely to lead to loneliness, which in turn is associated with distress, depression, and negative physical symptoms [2]. Social support has consistently been found to enhance adaptation to stressful situation, including significant illness. There is some evidence that social support may also serve as a buffer against disease progression. It appears that the patient's perception of support may be the most important element in this association. If a patient perceives that he or she has inadequate support, then the buffering effects of social support may be limited [4]. Recent researches has examined the influence of social support on physiological

processes that can lead to various diseases [2]. For example, House and colleagues research about connection between social support and health indicate that greater involvement in social activities and relationships predict longer life expectancies for both men and women [5]. Also, studies with adult cancer patients suggest that those who are unmarried have a decreased overall survival because they seek help later and at a more advanced disease stage [6].

These studies indicated that emotional support was associated with lower mortality over the next decade. The association between social support and life expectancy is found even in people who are critically ill. People who have cancer survive longer if they have extensive social support [2]. Study of patients with CHD and cancer indicate that those who receive higher levels of social support from their family and friends recover more rapidly from surgery, and require less pain medication [7]. People with high levels of social support have less susceptibility to herpes attacks and it has been tied to a reduced likelihood of mortality from myocardial infarction, better diabetes control and less pain among arthritis patients [8]. At present over 80 such studies have been conducted; almost all show significant beneficial effects of support on mortality from diseases including cardiovascular disease and cancer. On average, persons with low support have two to three times greater risk of mortality compared to those with high support [9]. With attention to topics aforesaid, present research intends to proceed with study of relationship of physical well-being

and social support in patients with acute leukemia after bone marrow transplantation and answer to below question: Do perceived social support dimensions predict physical well-being patients with acute leukemia after bone marrow transplantation?

Materials and Methods

This is a cross-sectional study. Statistical population was all of patients with acute leukemia between ages 18-45 years who were candidate for allogenic bone marrow transplantation and they had been referring to bone marrow transplantation center of Shariati hospital from July 2009 until August 2010 (13 months). Research sample selected during 13 months from population aforesaid via census procedure. 97 patients with acute leukaemia implanted in the span of 13 months. From 97 patients aforesaid, 30 patients go out from research by reason of absence of collaboration or they had not present research conditions and 9 patients go out from research for they died.

In all, sample of this research is 58 patients that consist of 38 men and 20 women. In this study, the patients who have the conditions of transplantation are added to the test list and then are introduced to the transplantation committee. Before transplantation surgical (almost 2 weeks), they are asked to fill the questionnaire of course after giving some precise explanation about the study and even acquiring the contentment for participate in the study. Then, they are evaluated for physical well-being through blood factors testing after bone marrow transplantation in three specified times (circa one, two and three months). In this study, the perceived social support Fleming and et al questionnaire and related test for measuring blood factors were utilized in order to data collection.

The perceived social support scale was prepared by Fleming et al. [9] which is included one short form which consists of 6 articles and one long form which consists of 25 articles. In this study, the long form of this scale was used which consist of 5 subscales which are as follows: perceived social support from friends (3 articles), perceived social support from neighbors (4 articles), perceived social support from family (7 articles), perceived social support in general (6 articles), opinion about social support (5 articles). In this study, subscale of perceived social support from neighbors was deleted, so the order 4 scales were utilized to do the task [10]. Grading scale concludes 7 degrees in the main form, but here in this study we tried to use the Yes/No (0 and 1) grading which it means all sentences that accept the social support will marked by (1) and those refuse the social support will marked by (0).

The validity coefficient of social support scale of the short form was evaluated to 0.7 through the test-retest method by Fleming et al. [9]. By using the factor analysis of social support scale validity for each of perceived social support subscales, the result was in hand from family, in general and friends (friends and neighbors),

0.87, 0.73 and 0.91 respectively by Dunn and et al [10]. The consistency coefficient or validity coefficient of social support scale through α -Cronbach coefficient was attained 0.68 and the average of reliability through the internal-correlation estimation of social support questionnaire articles was attained 0.84, in a study which has done by Hosseiny-Najdani [11].

Results

According to table 1, due to one unit increase in opinion about social support variable, we had 844.21 units decrease in white blood cells variable of 3 months after the transplantation and with one unit increase in perceived social support in general and opinion about social support variables, we had in order of 3.47 units increase and 6.02 units decrease in neutrophil variable of 3 months after transplantation. Also, with one unite increase in opinion about social support variable, we had 4.57 units increase in lymphocyte variable of 3 months after transplantation.

As it can be seen in table 2, the opinion about social support variable had a meaningful interaction with all the white blood cells during 3 times of evaluation after the transplantation ($p=0.034$) and it should be mentioned here that the main effect of white blood cells variable was meaningful too ($p=0.031$). In other words, the changes in white blood cells component in the length of time depends on opinion about social support variable levels. Furthermore, we have changes in white blood cells variable itself. But, the other variables don't have any meaningful relations with this collection ($p>0.05$).

Discussion

Table 1 findings showed that two dimensions of perceived social support-means perceived social support in general and opinion about social support – are able to predict the physical well-being after the bone marrow transplantation. Also, it should mention that according to table 2, there was a meaningful interaction between opinion about social support dimension and white blood cells collection after transplantation in 3 times measurement. In other words, the changes in white blood cells component depended on the levels of this dimension in the length of time.

So, in order to answer the study question, we can say that some of the dimensions of perceived social support (2 dimensions) can predict some of the physical well-being components after the transplantation. This study finding is in the same line of the following studies. For instance, Rosenberger and et al emphasized that social support plays an important role in patients recovery after the surgery [12].

After examining the relation between social support and survivorship in patient with acute myeloid leukaemia, Pinqurat et al. understood that the high levels of social support can predict the survivorship and life span of these patients [13].

Table 1. Regression analysis for perceived social support dimensions with well-being components

Dependent variable	Parameter	B	Std.Error	t	Sig
WBC after BMT (first month)	perceived social support from friends	477.41	384.86	1.24	0.221
	perceived social support from family	151.83	303.77	0.50	0.620
	perceived social support in general	354.68	291.78	1.22	0.230
	opinion Perceived social support	458.91	456.79	1.01	0.320
WBC after BMT (second month)	perceived social support from friends	513.16	291.82	1.76	0.085
	perceived social support from family	-319.72	230.33	-1.39	0.172
	perceived social support in general	374.26	221.24	1.69	0.097
	opinion Perceived social support	-342.62	346.36	-0.99	0.328
WBC after BMT (third month)	perceived social support from friends	-124.03	328.92	-0.38	0.708
	perceived social support from family	-89.01	259.62	-0.34	0.733
	perceived social support in general	218.72	249.37	0.88	0.385
	opinion Perceived social support	-844.21	390.40	-2.16	0.036
Neutrophil after BMT (third month)	perceived social support from friends	1.34	2.23	0.60	0.549
	perceived social support from family	-0.99	1.76	-0.57	0.573
	perceived social support in general	3.47	1.69	2.06	0.045
	opinion Perceived social support	-6.02	2.64	-2.28	0.027
Lymphocyte after BMT (third month)	perceived social support from friends	0.65	1.95	0.33	0.741
	perceived social support from family	0.54	1.54	0.35	0.727
	perceived social support in general	-2.43	1.48	-1.64	0.108
	opinion Perceived social support	4.57	2.32	1.97	0.044

Table 2. Variance analysis with repeated measurement for the dimensions of perceived social support with white blood cells component after transplantation in three times

Source	Test	Mean Square	df	F	Sig
WBC post-BMT in three times	Sphericity Assumed	13160390.58	2	3.59	0.031
WBC post-BMT in three times* perceived social support from friends	Sphericity Assumed	5388275.47	2	1.47	0.235
WBC post-BMT in three times* perceived social support from family	Sphericity Assumed	3751917.57	2	1.03	0.363
WBC post-BMT in three times* perceived social support in general	Sphericity Assumed	524926.48	2	0.14	0.867
WBC post-BMT in three times* opinion Perceived social support	Sphericity Assumed	12893010.15	2	3.52	0.034
Error	Sphericity Assumed	3661620.06	92		

The study taken by Rodrigue and et al, by the title of; Examining the illness intensity, morbidity and mortality following bone marrow transplantation has shown that social support solidity can strongly predict the survivorship after the bone marrow transplantation, of course just in the case that social support wouldn't be so crucial, otherwise leads to less survivorship following the transplantation [14, 15]. Even the study taken by Foster et al. has shown that the patients without any support were died 3 times more than patients having support. In order to explain the results of this study, some points can be mentioned: from view point of behavior, social support with the better coping, the better following of a healthy diet and prescription of medicines and the other medical advices are correlated [16]. From view point of psychological, Social support through giving people much-needed feelings of optimism, self-esteem, hope, and personal control and as a result the body physiologic response decrease toward the undesirable conditions can be advantageous and from view point of physiologic, psychosocial factors can be impressive on the survivorship due to an immunologic mechanism [2, 17]. The point that should be taken in to consideration is that, the patient will take the advantage of social supports' positive effects, just in the case that he/she believes to social support and considers it as a valuable item. Otherwise, no profit can be earned by him/her. In order to explain the question of why perceived social support from family and friends couldn't play the role of predictor in physical well-being after transplantation, it can be said that, the kind of support he/she receives should be

matched with the situation in order to be effective. Suppose a person with a predicament disease who has a really difficult treatment situations, he/she will supply his/her supports by informational and instrumental supports provided by the medical care because special situations them in present conditions more than the affective supports from friends or family, because of his /her distrust to the treatment result, treatment duration and some other uneasiness about the treatment expenses. So, even a complete support provided by friends and family will be in the next place and it doesn't have any role in physical well-being prediction after the transplantation in a short time.

The result generalization range was limited because of lack of bone marrow transplantation center which didn't allow the random sampling or even more sample selecting. It was impossible to follow longer term duration after the bone marrow transplantation and even examining the other factors related to physical well-being after the transplantation because of some executive problems which most of the researches are faced with them. It is recommended for further research to work on a more extended society and more samples in order to decrease error range and to be assured from the earned results. In this study, the main focus was on the examining the role of perceived social support in physical well-being prediction after the transplantation, in a further research the focus can be on examining the role of other factors such as; quality of life, psychiatry disorders and psychological adaptation which have some landmark effect on physical well-being. Since the duration of study

was 3 months after the transplantation, it is suggested that to work longer on patients in a matter of physical well-being in further studies. The subjects' ages were between 18 to 45 which is suggested to work on other age ranges in further studies. This study is dedicated to people with acute leukemia which will be a good study in further to work on their families too, because of an effective role of their family members during treatment period.

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Conflict of Interest

The authors declare no conflict of interest.

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