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Research Article

The effect of educational intervention on the quality of life of acute lymphocytic leukemia who undergoing chemotherapy

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ABSTRACT

Background: Increased knowledge of the parents about the problems and needs of children has an important effect on family support so that parents can provide optimal care to improve the quality of life of children.
The purpose of study was to determine the effect of educational intervention chemotherapy for parents on the quality of life of children acute lymphocytic leukemia.
Methods: The study design was a quasi-experimental design with The One Group Pretest-Posttest design. For the first, it was performed measurements the quality of life of children using a questionnaire. Furthermore, giving education for parents for 45 minutes, then measured using the same instrument on the seventh day after the education. This research has been conducted in the Pediatric Inpatient Dr M. Djamil Hospital Padang start from February to November 2014. The sample was taken using consecutive sampling. Based on the hypotheses sample test obtained the minimum number of samples was 24. The instrument used was a quality of life questionnaire developed by J. W. Varni i.e PedsQL™ 4.0 Generic Core Scale and PedsQL™ 3.0 Cancer Module.
Results: The results showed that there were significant differences in quality of life between the generic and cancer module before and after the educational intervention in the elderly (p value = 0.012; 0.000).
Conclusions: Parent's education about leukemia, chemotherapy, and management of side effects can improve quality of life of children acute lymphocytic leukemia both generic and cancer module.

Keywords: Education, Quality of life, Acute lymphocytic leukemia, Generic, Cancer module

INTRODUCTION

Leukemia is a cancer or malignancy involving the blood-forming tissues of the bone marrow and the lymphatic system (lymph nodes and spleen).[1-3] Acute lymphocytic leukemia is the most common type of leukemia in children that is about 75-80%.[2] Currently, it is estimated 2-4% of all cancers in Indonesia affects children. Cancer accounts for about 10% of deaths in children.[4] Indonesia has about 2000-3200 new cases of acute lymphocytic leukemia each year.[4]

Since the introduction of chemotherapy, 5-year survival rate of children with cancer has increased from 0% to nearly 75%.[5] Further Litzelman also stated that since the improvement of cancer treatment has improved the success rate of life.[6] Patients and families receive effective education about diagnosis and treatment of cancer during extremely beneficial in reducing anxiety,[7] can set him back as before the illness, and raises unrealistic expectations, reduce symptoms and side effects of treatment, increasing adherence to treatment regimens, improving coping and adjustment to cancer

diagnosis, reducing fatigue and improve the quality of life.[7-9]

Patient education about the disease, motivation and monitor patient adherence to therapy is an important aspect in achieving a positive outcome.[10] Several studies have also reported that an increase in parental knowledge about the problems and needs of children with leukemia have an important effect on family support so that parents can provide optimal care which leads to a significant improvement in the quality of life of children.[11,12]

Malone (2007) outlines the information given on educational intervention in the form of the side effects of chemotherapy agents include disorders blood counts, nausea, vomiting, fatigue, diarrhea, mucositis, and alopecia and general symptom management, and information support group that can be followed.[7] Educating the patient and family is very important before administration of chemotherapy agents and it is the nurse's responsibility to educate patients and families, especially information about the side effects of treatment and interventions which can minimize these effects.[2]

Mann revealed that education should be carried out continuously throughout the patients had cancer.[8] Nurses take responsibility for educating patients about the disease and treatment recommendations, potential side effects, and other important information.[8] Until now, research on the effects educational interventions for parents with acute lymphocytic leukemia children to the quality of life of children has not been found in Indonesia. It is necessary to research on the extent of the application of educational interventions chemotherapy for parents affects the quality of life of patients with acute lymphocytic leukemia.

METHODS

This research is an experimental research method using a quasi-experimental design. This study used a pretest and posttest, with a design that is used is the one group pretest-posttest design. In this design used a group of subjects. First performed measurements of the quality of life of children with acute lymphocytic leukemia undergoing chemotherapy using a questionnaire PedsQL TM 4.0 Generic Core Scale and PedsQL TM 3.0 Cancer Module. Then, respodents were given educational treatment for 45 minutes, and quality of life of children is measured using the same instrument on the seventh day after the education. Educational treatment was given using module that contains several topics like acute lymphocytic leukemia, anatomy and physiology blood cell system, therapeutic management/chemotherapy, how to treat side effects of chemotherapy, nutrition, and support system.

The population in this study were parents and children diagnosed with acute lymphocytic leukemia who are hospitalized in Dr. M. Djamil Hospital Padang within a period starting in May 2014. The study sample was selected by consecutive sampling with inclusion and exclusion criteria that have been set. The samples used in the study is calculated based on formula the estimated of sample of hypothesis testing of different two pairs proportion so that the minimum number of samples obtained by 24 samples. Test presence/absence of differences between the pretest and posttest with paired t-test.

RESULTS

Table 1: Respondent's characteristics.

Variables	n (%)	Mean ± SD	CI 95%
1. Age Toddler Preschool School-aged	 10 (41.7) 6 (20.8) 9 (37.5)	6,9 ± 3,52	5,5-8,5
2. Length of stay		7.9 ± 4.46	6.0-9.8
3. Gender Boy Girl	 16 (66.7) 8 (33.3)		
4. Chemotherapy phase Intensive Nonintensive	 13 (54.2) 11 (45.8)		
5. Education of mother			
Low High	9 (37.5) 15 (62.5)		
6. Occupation of mother Not working Working	 20 (83.3) 4 (16.7)		
7. Family sosioeconomic Poor High	 11 (45.8) 14 (54.2)		

In Table 1 it can be seen that the average child aged 6.9 years and a standard deviation 3.52 with the youngest 2 years old and the oldest 14.4 years. Researchers believed that the age of the child 95% of acute lymphocytic leukemia who undergo chemotherapy in Dr. M. Djamil Hospital Padang was in the range 5.5-8.4 years of age. The average length of hospitalization respondents was 7.9 days with a standard deviation 4.46. Most respondents were male (66.7%). In general, 13 respondents (54.2%) were in nonintensive phase. Subsequent data showed that most mothers had higher levels of education as many as 15 people (62.5%). More generally the mother did not work with 20 people (83.3%). High family socioeconomic by the number of 13 people (54.2%).

From table 2 it was known that the average total score of generic quality of life of acute lymphocytic leukemia

children before educational intervention and standard of deviation was 64.28 and 15.88, with a highest score 95.90 and the lowest 33.30. Next the average total score of module cancer quality of life before the intervention was 65.95 and standard deviation was 14.87. Lowest score was 42.10 and the highest was 98.10.

Table 2: Total score PedsQLTM 4.0 Generic Core Scale and PedsQLTM 3.0 Cancer Module of acute lymphocytic leukemia's children before educational intervention (n=24).

Quality of life	Mean	SD	Min-Max	CI 95%
PedsQL™ 4.0 Generic Core Scale	64.28	15.88	33.30-95.90	57.57-70.98
PedsQL™ 3.0 Cancer Module	65.95	14.87	42.10-98.10	59.66-72.23

Table 3: Total score PedsQLTM 4.0 Generic Core Scale and PedsQLTM 3.0 Cancer Module of acute lymphocytic leukemia's children after educational intervention (n=24).

Quality of life	Mean	SD	Min-Max	CI 95%
PedsQL™ 4.0 Generic Core Scale	69.65	14.49	33.28-95.95	63.53-75.77
PedsQL™ 3.0 Cancer Module	69.72	13.85	47.70-97.20	63.87-75.56

In Table 3 it was known that the average total score of generic quality of life after educational intervention and standard of deviation 69.65 and 14.49, with the lowest score and the highest was 33.28 and 95.95. Next the average total score of module cancer quality of life after education and standard deviation of 69.72 and 13.85. Lowest score was 47.70 and the highest was 97.20.

Table 4: Mean differences generic and cancer module quality of life between before and after the educational intervention (n=24).

	T	p value
Generic quality of life Pretest – post test	-2,72	0,012
Cancer module quality of life Pretest – post test	-7,27	0,000

From the above table it was found that there was differences in the generic quality of life significantly between before and after the implementation of educational interventions in parents with p = 0.012. Furthermore, the quality of life of cancer module between before and after the educational intervention in parents has a significant difference with p = 0.000.

DISCUSSION

The results showed that the average total score of generic and cancer module quality of life before intervention was 64.28 and 65.95 with a standard deviation of 15.88 and 14.87. These findings were below the results of research conducted by Sitaresmi et al. where the average quality of life of generic and cancer modules were 71.8 and 77.1.[13] This happens possible differences of individual and environmental characteristics. As according to Bredow and Peterson that quality of life is influenced by individual and environmental variables.[14] Further review articles about the variables that are often studied to determine the quality of life of children who have cancer conducted by Klassen et al reported that some of these are factors when assessing the child's age, age at diagnosis, sex, phase of treatment/chemotherapy, and socioeconomic status.[15] In this study the characteristics of the child in terms of age at assessment gained an average of 6.9 years old and most are in the toddler (1-3 years old children). As well as research conducted by Mounier et al. that age was significantly associated with quality of life. Poor quality of life in children with younger age.[16] This is in line with Sitaresmi et al. that the quality of life of children in the age group 2-4 years is lower than the age group 5-16 years were significantly.[13]

Furthermore, in general children were male gender. Sabbah et al. reported that the quality of life of girls is higher than boys.[17] According Tanir et al. differences in quality of life between boys and girls is likely due to the restriction of activity, social isolation and depression that develops in children with chronic diseases.[18] The low quality of life of children in this study probably influenced by the phase of chemotherapy. This is consistent with Mounier et al. that treatment-related quality of life significantly.[16] Further Sitaresmi et al. also reported that the quality of life in the nonintensive phase better than intensive phase.[13] After the educational intervention on the elderly about acute lymphocytic leukemia, chemotherapy and efforts to overcome the side effects of chemotherapy, nutritional support system and obtained an increase in the average quality of life of children acute lymphocytic leukemia.

The average quality of life of cancer generic modules 69.65 and 69.72. Further statistical tests showed a significant difference in the quality of life of children both generic acute lymphocytic leukemia or cancer module between before and after the educational intervention in the elderly.

Education of patients and families have been known as a central component to ensure that patients and families are able to determine treatment options, management of health care needs, and the effectiveness of the use of drugs.[19] According to The American Academy of Family

Practitioners, patient education is defined as the process of influencing the behavior of patients and resulted in changes in knowledge, attitudes, and skills that aims to acquire and improve health.[19] Legal and ethical mandate requires that patients are informed about their health status and choice so that they can be actively involved in developing and implementing a treatment plan.[19]

Previous research has reported that patient education contribute to patient satisfaction. Several studies have reported that increased parental knowledge about the problems and needs of children with leukemia have an important impact on family support, thereby triggering a significant improvement in the quality of life of children. Furthermore, other studies have shown that educational interventions have an impact on the quality of life of children with other chronic diseases such as asthma, cardiovascular, and so on.[12]

Hashemi et al. showed that before the intervention quality of life scores in experimental and control groups were 180.83 ± 14.43 and 174.28 ± 20.72 and after the intervention be 226.9 ± 11.76 and 174.41 ± 20.42.[12] Results showed that quality of life improved significantly in the experimental group. These results together with Cetinkaya and Kurt which indicates that the quality of life of children leukemia after providing information increased significantly compared with before giving the information.[20]

When a child is sick, the whole family must make adjustments to the new lifestyle includes a wide range of pain-related tasks. During the hospitalization of children require entertainment, maintenance, security, information and participation.[21,22]

Research showed that as a result of patient education, knowledge and self-management capabilities of children and the elderly increased,[23,24] decreased anxiety associated clinical measures,[25] and a feeling of control of the disease increases.[22]

Furthermore, Sung et al suggested that a better understanding of the quality of life in children who have cancer is very helpful, including helping parents and children anticipate events during treatment, helping families and health professionals choosing treatment strategies, and identifying children with lower quality of life to participate in supportive care interventions that improve the health of these children.[25] Thus, the assessment of quality of life in children who experience chronic conditions, especially acute lymphocytic leukemia should be routine to determine the effectiveness of a given intervention. Educational intervention of parents about leukemia, management and efforts to overcome the side effects, nutrition and support system has been able to improve the quality of life of children's leukemia significantly.

CONCLUSION

On average the quality of life and cancer generic module in children with acute lymphocytic leukemia undergoing chemotherapy before educational intervention in the elderly were 64.28 and 65.95. On average the quality of life and cancer generic module on child lymphocytic leukemia who undergo chemotherapy after educational intervention in the elderly were 69.65 and 69.72. There were significant differences the mean of generic and cancer module quality of life between before and after the educational intervention in the parents.

Based on the results and conclusions of research that educational interventions in parents can improve the quality of life of children with acute lymphocytic leukemia undergoing chemotherapy.

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