

Effectiveness of Planned Teaching Program on Knowledge Regarding Management of Leukaemia among Leukaemia Patients

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ABSTRACT

Introduction: Leukaemia is a blood cancer which affect the bone marrow. The cells of leukaemia or abnormal cells continue to grow and divide, resulting in the normal blood cells being crowded out. Thus, planned teaching on leukaemia management among patients with leukaemia would improve their health and mold them into a healthy quality of life.

Aim: To determine the effectiveness of planned teaching program on management of leukaemia among leukaemia patients.

Materials and Methods: The interventional one group pre-test and post-test study design with a Quantitative research approach was used. The present study was carried out in selected hospitals of Nagpur from January 2017 to March 2017. The sample size was 60. Validated pre-tested pre-designed structured questionnaires were used. Data collected were entered into the Microsoft Excel sheet. The statistical analysis was done using SPSS software. Frequencies and percentages were presented for categorical variables. Reliability analysis was done by the Guttman split-half coefficient and was found to be 0.90.

Results: The pre-test findings show that 23 (38.33%) had a poor level of knowledge score, 31 (51.67%) had average knowledge and 06 (10%) of them had good knowledge and no one of them had found a very good level of knowledge. After planned teaching in the post-test, 12 (20%) had a good knowledge score and 48 (80%) had very good knowledge, showing an increase in the knowledge score, post-test. The Mean score value of the pre-test was 07.57 and the post-test was 21.13 (p-value is 0.001), Hence it indicates that planned teaching was effective. There was a significant association between knowledge scores of leukaemia patients with respect to education of leukaemia patients (p-value 0.014 i.e. <0.05) and area of residence (p-value 0.047 i.e. <0.05).

Conclusion: The study showed that the leukaemia management education was successful in improving the awareness about management of leukaemia and thus helps them to understand the nature and management of the disease as well as to take the required measures to avoid complications.

Keywords: Awareness, Efficacy, Educational intervention

INTRODUCTION

Cancer also called as malignant neoplasm is a type of disease where a community of cells shows uncontrolled development, attack and often multiplies via lymph or blood, i.e., metastasis, to other places in the body. Cancer grows when ordinary body control mechanisms stop functioning and cells grow uncontrolled, resulting in the development of new, abnormal cells. These extra cells or new cells can result in tissue mass, called a tumor. Some cancers don't form tumors, such as leukaemia [1].

Leukaemia was the 12th most common form of neoplastic disease of the 16 different sites linked to the body, and the 11th most common cause of cancer-related death [2]. Leukaemia cancer can be seen mostly in adults older than 55 years, but now-a-days it is the most common cancer in children, younger than 15 years. Increase prevalence of leukaemia is an annual incidence in India varying from 0.9 to 1.5 per 100,000 [3].

Benzene is the second best documented risk factor for developing leukaemia according to current scientific understanding. It has been widely used as a solvent for several applications in the industry because of its chemical properties and for workers working in the manufacture of chemicals, pharmaceuticals, plastics, synthetic rubbers, paints, oil processing occupational exposure to benzene has been documented. One epidemiological study has exposed a major correlation between benzene exposure and the occurrence of acute myeloid leukaemia [4]. Leukaemia can either be acute or chronic, most children suffer from acute leukaemia [5].

Treatment for leukaemia can be achieved in different ways, such as chemotherapy, biological therapy, targeted therapy, stem cell transplants, and radiation therapy. The main cure for leukaemia

is chemotherapy. Chemotherapy drugs may be taken by pill or injection, which leads to killing of cancer cells. Translational research aimed at transferring knowledge on lifestyle management and home management to the patient that will help them improve their health so that patients with leukaemia can enjoy the life. Information should also be given to the patient as soon as possible. This is the first step in developing lifestyle management and understanding how to manage leukaemia in lifestyle discovery and health improvements [6].

Factors for standard of living have been associated with the risk of rising many common malignancies. Observational study showed an association between factors in the energy balance (i.e., diet, physical activity and body weight) and cancer risk relapse and mortality. Interventional procedure has shown that people who make positive changes to these lifestyle factors after diagnosing cancer feel much better, less fatigue and even reduce the risk of cancer recurrence. Smoking and alcohol consumption are the other lifestyle behaviours which have also been linked with the progress of common cancers and could have considerable health consequences for cancer survivors [7]. Hence, present study was conducted with an aim to determine the effectiveness of planned teaching program on management of leukaemia among leukaemia patients.

Hypothesis

H0: There will be no significant difference between knowledge scores regarding the management of leukaemia among leukaemia patients.

H1: There will be a significant difference between knowledge scores regarding the management of leukaemia among leukaemia patients.

MATERIALS AND METHODS

An interventional one group pre-test and post-test research design was used in this study. The study was conducted from January 2017 to March 2017 and the setting was selected in various hospitals, Wockhardt Hospital, and Ganga Care hospital at Nagpur after getting ethical permission (Ref. no: DMIMS(DU)/IEC/17-18/7020). The leukaemia patients were informed and explained the objective of the study. The written informed consent, duly signed individually by them, was obtained. A total of 60 patients were included in the specified period of time.

Inclusion criteria: Leukaemia patients who can understand and write English and Marathi, and who gave consent for participation in the study.

Exclusion criteria: Critically ill and illiterate patients were excluded from the study.

Demographic variables were collected in terms of age, gender, education, residential area. A structured questionnaire, [Annexure 1] was formed with 24 multiple choice questions and these were classified as: (i) meaning of causes and effect of leukaemia; (ii) medical management, lifestyle management, complications and prevention of leukaemia. After extensive review of literature [8] and with the help of experts, the structured questionnaire was prepared. Each correct answer carried one mark and the total score was 24. The prepared tool was validated by twelve experts (ten from the Nursing Department, one from the Department of Medicine and one from the Physiology Department). Reliability analysis was done by the Guttman split-half coefficient and was 0.90, hence the tool was found to be reliable, valid and feasible.

The interview technique was processed for 60 samples and was planned to gather demographic information and the knowledge on leukaemia management. On the first day of the data collection, the pre-test was conducted on the management of leukaemia. The questionnaire was given to every study participant; each one required approximately 30 minutes filling the standardised questionnaire. Following the pre-test, intended teachings were conducted on the management of leukaemia for 45 minutes which was divided into two groups (30 participants in each group) with sufficient audiovisual aids in a quick and clear understandable way for the study participant using PowerPoint presentation. The post-test was carried out with the same questionnaire on the 7th day.

STATISTICAL ANALYSIS

The collected data were coded, tabulated and analysed by using descriptive statistics (mean percentage, standard deviation) and inferential statistics. Significant difference between pre and post-test readings was tested by using a t-test; association of knowledge with demographic variables was done by one way ANOVA test.

RESULTS

Majority of the samples were from 26-35 years of age. The majority of them belong to secondary education. The majority of the, 75% belong to an urban area [Table/Fig-1].

Pre-test, about 38.33% had poor knowledge score, 51.67% had average knowledge score, 10%, has good knowledge score and none of them had very good knowledge score. The minimum score was 4 and the maximum score was 15, the mean score was 7.57±02.696 with a mean percentage score of 31.54% [Table/Fig-2].

Post knowledge lesson plan execution, none of them had poor and average knowledge, 20% had good knowledge score and 80% had very good knowledge score. The minimum score was 14 and the maximum score was 24, the mean score was 21.13±1.885 with a mean percentage score of 83.66% [Table/Fig-3].

Hence, it was statistically interpreted that the planned teaching on knowledge regarding management of leukaemia among leukaemia patients was helpful. Thus the H1 is accepted and H0 is rejected in this research [Table/Fig-4].

Demographic variable	Frequency	Percentage (%)
Age in year		
18-25	13	21.67
26-35	22	36.67
36-45	20	33.33
46 and above	05	08.33
Gender		
Male	46	76.67
Female	14	23.33
Education		
Primary	17	28.34
Secondary	21	35.00
Higher secondary	14	23.33
Graduation and above	8	13.33
Residential area		
Urban	45	75.00
Rural	15	25.00

[Table/Fig-1]: Frequency distribution of socio-demographic variables among leukaemia patients. n=60

Level of knowledge score	Score range	Percentage score	Pre-test	
			Frequency	Percentage (%)
Poor	00-06	0-25%	23	38.33
Average	07-12	26-50%	31	51.67
Good	13-18	51-75%	06	10.00
Very good	19-24	76-100%	00	00.00
Minimum score	04			
Maximum score	15			
Mean score	07.57±02.696			
Mean percentage	31.54%			

[Table/Fig-2]: Assessment of existing knowledge (pre-test) regarding the management of leukaemia. n=60

Level of knowledge score	Score range	Percentage score	Post-test	
			Frequency	Percentage (%)
Poor	0-06	0-25%	00	00
Average	07-12	26-50%	00	00
Good	13-18	51-75%	12	20
Very good	19-24	76-100%	48	80
Minimum score	14			
Maximum score	24			
Mean score	21.13±1.885			
Mean percentage	83.66 %			

[Table/Fig-3]: Assessment of post-test knowledge regarding the management of leukaemia. n=60

Tests	Mean score	SD	t-value	Degree of Freedom (df)	p-value
Pre-test	07.57	±02.695	42.23	59	0.001
Post-test	21.13	±1.885			

[Table/Fig-4]: Percentage-wise distribution of effectiveness of planned teaching. n=60; p-value significant at <0.05

There was a substantial association between knowledge scores of leukaemia patients with respect to education of leukaemia patients (p-value=0.014) and residence area (p-value=0.047) [Table/Fig-5].

DISCUSSION

The study was conducted to evaluate the effectiveness of planned teaching about leukaemia management. It intended to promote

Demographic variables	Frequency	Post-test knowledge Mean±SD	f-value/ t-value	df	p-value
Age in years					
18-25	13	19.77±2.42	1.13	3 (56)	0.34
26-35	22	19.77±2.70			
36-45	20	20.85±1.92			
46 and above	05	19.20±2.16			
Gender					
Male	46	20.41±2.34	1.99	58	0.060
Female	14	19±2.21			
Education					
Primary	17	19.11±3.12	3.88	3 (56)	0.014
Secondary	21	19.57±1.80			
Higher secondary	14	21.07±1.59			
Graduation and above	08	21.75±1.75			
Residence area					
Urban	45	19.73±2.43	2.02	58	0.047
Rural	15	21.13±1.88			

[Table/Fig-5]: Association of knowledge with demographic variable. ANOVA was used; p-value significant at <0.05; df: Degree of freedom

patients knowledge of leukaemia about management. The mean post-test score 21.13 (± 1.885) was higher than the mean score in pre-test 07.57 (± 0.695), thus show that the scheduled teaching was effective. The significant difference between the two tests was evaluated by using paired t-test and the degree of significance was set at the computed t-value ($p < 0.001$), suggesting that there was a substantial difference in the awareness of patients with leukaemia regarding leukaemia management.

A similar study was carried out by Kale A, on the effectiveness of the proposed teaching program related to home treatment of Acute Lymphocytic Leukaemia (ALL) on awareness among caregivers of children undergoing chemotherapy in selected hospitals. Findings showed that planned teaching program intervention has been significantly effective in improving knowledge among caregivers and there is no correlation between caregiver knowledge and demographic variables such as (age, gender, child relationship, employment, income) [8].

A previous study on treating Chronic Myeloid Leukaemia (CML) showed improvement in management of patients by understanding the experience of patients. It resulted in the tremendous progress in the treatment of CML. Thus, it was understood that oncology nurses who can clarify evolving results and their significance were included with quicker, wider responses, to be a valuable asset for hospitals and their patients [9].

A study was conducted in which sixty parents of patients with paediatric leukaemia were taken in the study. It shows that educational intervention increased the parents 'knowledge of paediatric leukaemia patients about healthy siblings' needs and how to meet them. It was recommended that educational programs for parents should be designed to enhance the quality of life in the healthy children [10].

Research by Polocka-Molińska M et al., aims to assess common knowledge shared by patients with leukaemia aged 12-18 years and to determine their attitude to the diagnosed disease. In patients aged 12-18 years, the level of knowledge about leukaemia is highest in respondents aged 18 years. There is no dependence between the lapse of time from the moment of diagnosis and the increase in knowledge about the subject. With the time-lapse from the moment of diagnosis, the attitude of young leukaemia patients towards their illness does not change [11].

A study was conducted by Saxena A, with a purpose to evaluate and estimate the knowledge, attitude and practice of nursing staff regarding chemotherapy administration and its side effects. It shows that the planned teaching program was intended to be successful in raising awareness, cultivating a favorable attitude and enhancing correct practices in the administration of chemotherapy and its management of side effects [12].

Limitation(s)

The study focused on finding the efficacy of scheduled information education about leukaemia management amongst leukaemia patients into which management of leukaemia scores was taken as the main indicator. The other limitation was though the tool assessed knowledge regarding leukaemia management, the scores were self-reported, so an increase in the score had definitely shown knowledge increase but how far it was transformed into practical application could not be evaluated. Another limitation was, due to resource constraints the individual-level data could not be compared pre-interventional knowledge and post-interventional teaching (authors used aggregate data to compare scores).

CONCLUSION(S)

The current study concludes that leukaemia patient's understanding of leukaemia management is insufficient. However, the knowledge can be improved with planned teaching. Training helps them to take the appropriate measures to recognise and prevent leukaemia complications. Further studies with the involvement of family members and caretakers providing proper resources for aiding leukaemia management and practices are needed to study the real impact of the intervention.

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REFERENCES

- [1] What is Cancer? | Common Forms and Oncology Treatment Options [Internet]. Cancer Treatment Centers of America. 2019 [cited 2020 Jun 17]. Available from: <https://www.cancercenter.com/what-is-cancer>.
- [2] Mathers CD, Boschi-Pinto C, Lopez AD, Murray CJ. Cancer incidence, mortality and survival by site for 14 regions of the world. 47.
- [3] Disease_Statistics.pdf [Internet]. [cited 2020 Jun 17]. Available from: https://www.babycell.in/pdf/Disease_Statistics.pdf.
- [4] Leukaemia, Part 2- Treatment, Side Effects, Restrictions, and Implications for School [Internet]. [cited 2020 Jun 17]. Available from: <http://www.connectedkansaskids.com/diagnoses/leukaemia2.html>.
- [5] Mughal TI, Radich JP, Deininger MW, Apperley JF, Hughes TP, Harrison CJ, et al. Chronic myeloid leukaemia: Reminiscences and dreams. *Haematologica*. 2016;101(5):541-58.
- [6] Polychronakis I, Dounias G, Makropoulos V, Riza E, Linos A. Work-related leukaemia: a systematic review. *J Occup Med Toxicol Lond Engl*. 2013;8:14.
- [7] Ligibel J. Lifestyle factors in cancer survivorship. *J Clin Oncol*. 2012;30(30):3697-704.
- [8] Kale A. A Study to assess the effectiveness of planned teaching programme related to home care of acute lymphocytic leukaemia (ALL) on knowledge among caregivers of children receiving chemotherapy in selected hospitals of Sangli, Miraj and Kupwad Corporation area. *IJNR*. 2016;2(3):128-34.
- [9] Simoneau CA. Treating chronic myeloid leukaemia: improving management through understanding of the patient experience. *Clin J Oncol Nurs*. 2013;17(1):E13-20.
- [10] Hashemi F, Asadi N, Beheshtipour N, Karimi M. The impact of educating parents of leukaemic children on the patients' quality of life. *Iran Red Crescent Med J*. 2011;13:550-55.
- [11] Polocka-Molińska M, Krauss H, Ignyś I, Osmólska A. Common knowledge of leukemia among the youth and their attitude to the diagnosed disease. *Rocz Akad Med Białymst*. 2005; Vol. 50 (Suppl. 1):250-53. Available from: http://www.advms.pl/roczniki_2005_supl_1/volumes/64_Polocka_Krauss.pdf.
- [12] Saxena A. Cancer chemotherapy and its side effect management. *Nurs J India*. 2006;97(5):109-10.

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Instructions:-Sample No.....

- Please provide information about the following
- The information will be kept confidential
- Read each item carefully and tick the most appropriate answer
- Avoid over writing, tick only one option for each question
- Attempt all questions.

SECTION A-Socio demographic data**1. Age in years:**

- a. 18-25 years
- b. 26-35 years
- c. 36-45 years
- d. 46 and above

2. Gender:

- a. Male
- b. Female

3. Education:

- a. Primary
- b. Secondary
- c. Higher secondary
- d. Graduation and above

4. Residential area:

- a. Urban
- b. Rural

SECTION B -Questionnaire to assess the knowledge regarding management of leukemia's**1. The meaning of cancer is:**

- a) Uncontrolled growth of abnormal cells
- b) Increase level of haemoglobin
- c) Decrease level of platelets
- d) Rapid death of blood cells

2. Leukaemia is also known as:

- a) Bone cancer
- b) Blood cancer
- c) Brain cancer
- d) Lung cancer

3. Leukaemia is a cancer of:

- a) Red blood cells
- b) White blood cells
- c) All blood cells
- d) Platelets

4. Function of white blood cells in our body is:

- a) Fighting against infection
- b) Clotting of blood
- c) Carry oxygen
- d) Blood circulation

5. One of the most common cause of leukaemia is:

- a) Environmental factors
- b) Genetic factors
- c) Psychosocial factors
- d) Social factors

6. One of the risk factor of leukaemia is exposure to:

- a) Sun
- b) Cold
- c) High amount of radiation
- d) Homemade dust

7. One of the most common symptom of leukaemia is:

- a) Frequent infections or fever
- b) Diarrhea
- c) Weight gain
- d) Fast wound healing

8. In leukaemia blood test determine abnormal level of:

- a) Potassium
- b) Sodium
- c) White blood cells
- d) Creatinine

9. Choice of leukaemia treatment depends on the:

- a) Patient mood
- b) Types and stage of leukaemia
- c) Leukaemia cell size
- d) Body tissue size

10. Primary treatment of leukaemia is:

- a) Stem cell transplantation
- b) Alternative therapy
- c) Chemotherapy
- d) Radiation therapy

11. The meaning of chemotherapy is taking:

- a) Alternative anticancer drug therapy
- b) Regular anticancer drug therapy
- c) Single dose anticancer therapy
- d) Combination of anticancer drug therapy

12. One of the side-effects of chemotherapy is:

- a) Bed sore
- b) Mouth sore
- c) Foot ulcer
- d) Skin sore

13. Radiation therapy is used to kill:

- a) T cell
- b) Cancer cell
- c) Beta cell
- d) Alpha cells

14. One of the side effects of radiation therapy is:

- a) Skin irritation
- b) Vision disturbance
- c) Hearing disturbance
- d) Speech disturbance

15. One of the treatments for leukaemia is:

- a) Heart transplantation
- b) Haemodialysis
- c) Angioplasty
- d) Stem cell transplantation

16. Recommended diet in leukaemia is:

- a) Vegetables, fruits & whole grain
- b) Unpeeled fruits
- c) Unpasteurised dairy products
- d) Meat, seafood, eggs

17. Diet avoided in leukaemia includes:

- a) Undercooked foods
- b) Steam vegetables
- c) Whole grains
- d) Fruits

18. Helps to reduce the side effects of leukaemia treatment:

- a) Weight reduction
- b) Starvation
- c) Nutrition therapy
- d) Fast

19. The toothbrush used in leukaemia for mouth care is:

- a) Soft bristled
- b) Tough bristled
- c) Rigid bristled
- d) Hard bristled

20. Wear clothing to protect skin from sun:

- a) Synthetic
- b) Tight
- c) Short sleeves
- d) Loose

21. Easy measures to minimize the risk of infection in leukaemia is:

- a) Hand washing
- b) Hair combing
- c) Hair cutting
- d) Foot care

22. In leukaemia exercise helps to reduce:

- a) Fatigue
- b) Eager
- c) Passion
- d) Devotion

23. Primary complication of leukaemia is:

- a) Necrosis
- b) Stroke
- c) Infection
- d) Rash

24. One of the serious complications of leukaemia is:

- a) Mental disorders
- b) Anxiety disorders
- c) Bleeding disorders
- d) Eating disorders