ORIGINAL ARTICLE

Evaluating continuous nursing for elderly patients undergoing leukaemia chemotherapy

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Abstract

Objective: To evaluate the impact of continuous nursing on elderly patients undergoing acute leukaemia chemotherapy.

Method: The prospective randomised controlled trial was conducted at the Department of Haematology, Nanjing First Hospital, Jiangsu, China, from September to November 2023, and comprised elderly patients with acute leukaemia undergoing chemotherapy. They were randomised into experimental group A receiving continuous nursing intervention, and control group B receiving conventional nursing intervention. Psychological state, compliance behaviours, incidence of adverse reactions, and quality of life were assessed before and after the intervention. Data was analysed using SPSS 26.

Results: Of the 80 patients, 40(50%) were in group A; 21(52.5%) females and 19(47.5%) males with mean age 71.58±5.66 years. There were 40(50%) patients in group B; 20(50%) females and as many males with mean age 71.47±5.38 years. After the intervention, group A had significantly lower scores for anxiety and depression compared to group B (p<0.05). Compliance behaviours, medication coordination, water intake control, and regular rest were significantly better in group A (p<0.05). Group A also showed a lower incidence of adverse reactions (p<0.05) and higher quality of life scores (p<0.05) compared to group B.

Conclusion: Continuous nursing significantly improved the psychological state, enhanced compliance behaviours, and reduced adverse reactions, leading to a better quality of life for elderly patients undergoing acute leukaemia chemotherapy.

Keywords: Continuous nursing, Elderly, Leukaemia chemotherapy, psychological state. (JPMA 75: S-61 [Suppl. 02]; 2025)

DOI: https://doi.org/10.47391/JPMA.SRPH-10

Introduction

Leukaemia is a common haematological malignancy arising from haematopoietic stem and progenitor cells.[1,2] In China, its frequency is 3-5 per 100,000 people, with a fatality rate of 3.13 per 100,000.[3,4] In recent years, the incidence has been rising, posing a significant threat to public health.[5,6] Currently, chemotherapy is the primary treatment, though its long duration and various side-effects contribute to physical discomfort and negative emotions in patients, reducing treatment adherence.[7] This is particularly evident in elderly patients, who often experience decreased tolerance due to weakened bodily functions.[8]

In the past, conventional nursing was limited to in-hospital care, without extending services beyond the hospital, which no longer meets patients' growing needs.[9,10] Continuous care, a model that includes home care management after discharge, extends hospital care and helps alleviate negative emotions, promote attention to out-of-hospital treatment, and improve treatment compliance.[11,12] However, most studies on the impact of continuous care for leukaemia patients undergoing chemotherapy have focussed primarily on paediatric and adult populations, with limited inclusion of elderly individuals.[13,14]

Leukaemia, a group of haematological malignancies marked by abnormal white blood cell (WBC) proliferation, affects all age groups.[15,16] Elderly patients, however, face unique challenges due to comorbidities, altered drug metabolism, and decreased physiological reserves.[17,18] Continuous nursing care plays a key role in improving outcomes for this vulnerable group during chemotherapy.[19]

The 2020 guidelines of the American Society of Haematology (ASH) emphasise the importance of individualised treatment for older adults with acute myeloid leukaemia (AML).[20] Geriatric assessment tools — such as evaluations of functional status, cognition, and social support — identify impairments beyond routine oncological assessments.[21,22] By using these assessments to tailor treatment plans, clinicians can optimise therapy choices, considering factors like comorbidities, performance status and patient preferences.[23,24]

The National Comprehensive Cancer Network (NCCN) guidelines[25] specifically address AML treatment in older patients, emphasising a balance between treatment efficacy and toxicity. Individualised approaches take into account factors like comorbidities, functional status and

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overall health. Treatment decisions may involve adjusting drug doses, modifying schedules, or choosing less-intensive therapies.[26]

A study highlighted comorbidity as an independent predictor of complete remission.[27] Early identification of comorbidities through geriatric assessments allows clinicians to tailor treatment plans, optimising supportive care and improving treatment tolerance and overall outcomes.[28]

Continuous nursing care, guided by evidence-based guidelines and interdisciplinary collaboration, plays a crucial role in the wellbeing of elderly leukaemia patients during chemotherapy.[29,30] Clinicians should prioritise individualised approaches, utilising oncology nurses' expertise.[31] Further research is needed to explore how continuous nursing interventions impact specific outcomes and develop strategies for managing treatment-related toxicities. The current study was planned to address the gaps in literature by evaluating the effectiveness of continuous nursing care for elderly leukaemia patients during chemotherapy.

Patients and Methods

The prospective randomised controlled trial (RCT) was conducted at the Department of Haematology, Nanjing First Hospital, Jiangsu, China, from September to November 2023 (Registered at ClinicalTrials.gov with the identifier NCT06066242) and comprised elderly patients with acute leukaemia undergoing chemotherapy. After approval from the institutional ethics review board, the sample size was calculated using G*Power software to achieve 80% power at 95% confidence level.[32] Written informed consent was obtained from all the subjects prior to participation. The patients were randomised using a computer-generated random number sequence into intervention group A and control group B.

The controls received standard nursing care during hospitalisation and post-discharge. Medication intervention was given based on the doctor's advice, and nursing staff regularly monitored the physical parameters of the patients. Before chemotherapy, patients and their families received education on the steps, benefits and potential adverse reactions of chemotherapy to ensure compliance. Post-chemotherapy care included management of side-effects, basic guidance on daily life and diet, and emphasising personal hygiene to prevent infections.

In group A, a structured continuous care intervention was implemented by a multidisciplinary team consisting of an attending doctor, nurse, supervisor nurse, and head nurse, all of whom had received training on continuous care protocols. During hospitalisation, psychological counselling and health education were imparted using approaches, such as music therapy and attention-transfer methods, to alleviate negative emotions. The patients were informed of the importance of chemotherapy compliance, and guided to adhere to the correct medication regimen. Upon discharge, a WeChat group was created for patient communication, where patients were guided on its use for sending messages and accessing information. Individual health files were established for each patient to monitor treatment progress and health status. Nursing staff provided regular medication guidance, including drug usage, precautions, and prevention of complications, such as respiratory infections. The patients were encouraged to share experiences and progress within the group to foster mutual support, and disease-related information as well as success stories were regularly disseminated to promote optimism. Dietary recommendations emphasised light, easily digestible food with adequate protein and vitamins. Nursing staff monitored the emotional states of the patients, and for those exhibiting severe negative emotions, additional targeted psychological counselling and follow-ups were provided. The intervention lasted two months post-discharge, with regular follow-ups conducted to ensure adherence and support.

Scale assessments for all patients in both groups were performed by trained team members on the day of discharge and two months after the intervention. Data was recorded and securely maintained by a designated team member. Psychological status was evaluated using the Self-Rating Anxiety Scale (SAS) and Self-Rating Depression Scale (SDS), with standard scores ranging 0-100, and higher scores indicating more severe anxiety or depression.[33,34] Medical compliance behaviour was assessed using an institutional daily observation sheet that recorded patient adherence to dietary recommendations, medication, rest and fluid intake. Adverse reactions, including oral infection, alopecia, mucocutaneous haemorrhage and gastro-intestinal reactions, were documented during follow-ups. Quality of life (QOL) was measured using the Medical Outcomes Study Short-Form Health Survey (SF-36),[35] consisting of 8 dimensions and 36 items, with scores ranging 0-100, and higher scores indicating better QOL.[36]

Data was analysed using SPSS 26. Measurement data was expressed as mean±standard deviation, and comparisons between the groups were performed using the *t*-test. Categorical data was expressed as frequencies and percentages, and comparisons were performed using the chi-square test. $P<0.05$ was considered statistically significant.

Results

Of the 80 patients, 40(50%) were in group A; 21(52.5%) females and 19(47.5%) males with mean age 71.58±5.66 years. There were 40(50%) patients in group B; 20(50%) females and as many males with mean age 71.47±5.38 years (Table 1). At baseline, there was no significant difference in SAS and SDS scores between the groups (p>0.05), but after the intervention, group A had significantly lower scores for anxiety and depression compared to group B (p<0.05) (Table 2).

Compliance behaviours, medication coordination, water intake control, and regular rest were significantly better in group A than group B (p<0.05)(Table 3).

Group A also showed a lower incidence of adverse reactions (p<0.05) compared to group B (Table 4).

Before the intervention, there was no significant difference in QOL scores between the groups (p>0.05). After the intervention, both groups showed improved scores, but the increase was significantly greater in group A compared to group B (p<0.05) (Table 5).

Table-1: Comparison of clinical data between the groups.

Group	Gender		Age	Duration of disease
	Male	Female		
Experimental (n=40)	19	21	71.58±5.66	5.83±2.52
Control (n=40)	20	20	71.47±5.38	6.01±2.29
t/x^2	0.363		0.815	0.418
***p*-value**	>0.05		>0.05	>0.05

Table-2: Comparison of psychological status scores between the groups.

Group	SAS score		SDS score	
	Pre-intervention	After intervention	Pre-intervention	After intervention
Experimental (n=40)	61.82±10.18	43.23±9.78	59.21±9.29	39.87±11.23
Control (n=40)	62.09±10.51	51.30±10.11	58.89±8.92	48.32±10.69
***t*-test**	0.492	14.391	0.279	10.184
***p*-value**	> 0.05	< 0.05	> 0.05	< 0.05

SAS: Self-Rating Anxiety Scale, SDS: Self-Rating Depression Scale.

Table-3: Comparison of compliance behaviours between the groups.

Group	Reasonable diet	Coordinated medication	Water intake control	Regular rest
Experimental (n=40)	37 (92.50)	38 (95.00)	37 (92.50)	35 (87.50)
Control (n=40)	26 (65.00)	30 (75.00)	25 (62.50)	25 (62.50)
x^2	11.425	9.496	10.167	9.014
***p*-value**	< 0.05	< 0.05	< 0.05	< 0.05

Table-4: Comparison of the occurrence of adverse reactions between the groups.

Group	Oral infections	Alopecia	Mucocutaneous haemorrhage	Gastrointestinal reactions	Overall incidence
Experimental (n=40)	1 (2.50)	1 (2.50)	0 (0.00)	1 (2.50)	3 (7.50)
Control (n=40)	2 (5.00)	5 (12.50)	1 (2.50)	1 (2.50)	9 (22.50)
x^2					8.539
***p*-value**					< 0.05

Table-5: Comparison of patients' quality of life scores between the groups.

Group	SF-36 score	
	Pre-intervention	After intervention
Experimental (n=40)	52.64±10.18	66.29±7.02
Control (n=40)	52.15±10.39	60.11±8.23
***t*-test**	0.229	4.476
***p*-value**	>0.05	<0.05

SF: Short form health survey.

Discussion

The current study explored the effect of continuous nursing intervention in elderly patients with leukaemia undergoing chemotherapy. After the nursing intervention, SAS and SDS scores in both groups decreased compared to pre-intervention levels, with significantly lower scores in the experimental group (p<0.05). This finding suggested that continuous nursing effectively improved patients' psychological state by reducing anxiety and depression, which aligns with earlier findings.[37-40] Negative emotions, such as anxiety and depression, are common in elderly leukaemia patients due to pain and fear of disease progression. Continuous care enhances nurse-patient communication post-discharge, helping the patients regain confidence in their treatment, reshape hope, and adopt a positive attitude towards recovery.

Patient compliance is crucial for ensuring the effectiveness of treatment. The current study showed that the compliance rates in the experimental group — including reasonable diet, coordinated medication, regular rest and water intake control — were significantly higher than those in the control group (p<0.05). Continuous nursing improved compliance by enhancing patient education, promoting understanding of the disease, and addressing psychological concerns through active communication. These findings were consistent with previous research.[31-43]

Furthermore, the current study demonstrated that the incidence of adverse reactions in the experimental group was lower than in the control group, while QOL scores were significantly higher (p<0.05). Continuous intervention strengthened patients' understanding of chemotherapy-related risks and management strategies, thereby reducing adverse reactions, such as oral infections, alopecia and gastrointestinal symptoms. Patients receiving continuous care were better equipped to maintain personal hygiene, adhere to a balanced diet, and engage in regular physical activity, which collectively improved their QOL.

The current study has some limitations. The small sample size and short follow-up period may limit the generalisability of the findings. Additionally, the long-term effects of continuous care on complications and prognosis have remained uncertain. Future research should include larger sample sizes and extended follow-up periods to provide more comprehensive and reliable insights.

Conclusion

Continuous nursing significantly enhanced the psychological wellbeing of elderly patients undergoing leukaemia chemotherapy. It helped patients actively manage their condition, adhere to treatment, reduce adverse reactions, and improve their QOL.

Disclaimer: None.

Conflict of Interest: None.

Source of Funding: None.

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