The Role Of Nursing In Mitigating Side Effects And Enhancing Well-Being In Liver Cancer Therapy

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Keywords:

liver cancer, nursing, side effect management, patient well-being, holistic care, symptom management, patient education, psychosocial support, multidisciplinary care, quality of life

Abstract

Patients receiving treatment for liver cancer rely on nurses to help them cope with treatment-related side effects and improve their overall health. Using pharmacological and non-pharmacological measures, nurses diligently monitor patients to detect and manage treatment-related problems, including nausea, tiredness, hepatotoxicity, and ascites. In order to promote treatment adherence and empower patients with self-care practices, they provide patient-centered education. As part of their comprehensive treatment, nurses also provide psychological and emotional support, helping patients cope with issues like depression, anxiety, and spirituality via the coordination of care from other medical professionals. Nurses improve patients' quality of life and dignity during treatment by acting as advocates and involving families. The importance of nurses in improving patients' health and achieving the best possible clinical results for those with liver cancer is emphasized in this research

I. INTRODUCTION

Malignant tumours are common, and liver cancer is one of them. Second only in fatality rate to stomach cancer, it is responsible for about 19.00% of all fatalities caused by cancer [1-3]. Despite the continuous advancements in medical technology, about 10,000 individuals succumb to liver cancer annually in China [4, 5]. Patients with advanced liver cancer are more prone to negative emotions like fear, anxiety, and irritability due to the malignant nature of the disease and its complications, such as cancer pain, loss of appetite, and dyspnea. As a result, patients may lose faith in their treatment and be unwilling to cooperate. Traditional clinical practice relied heavily on regular nursing care, which failed to meet patients' requirements since it was not patient-cantered. Modern nursing principles serve as a compass for humanized nursing care, which is patient-cantered. Each patient's unique physiological, psychological, and mental conditions inform the development of individualized nursing care plans. Researchers have shown that patients undergoing radiation treatment for oesophageal cancer may benefit from humanized nursing care.

Since its inception, the oncology nurse's responsibilities have grown to include more than just caring for patients; they now include overseeing genetic counselling, therapy pre-screening and administration, nurse-led clinics, and even institutional leadership [6]. Improvements in the treatment of TRAE, physical and mental health, and patient education are just a few examples of the areas where nurse-led innovations in patient care (i.e., interventions that nurses predominantly give) have shown to be beneficial [7,8]; a poll of UK healthcare providers found that patients would benefit from more nurse participation in TRAE management if nurses were more actively involved; however, only around half of the nurses polled were open to taking on more responsibilities in this area [9]. The belief of nurses that they lack the necessary time and resources might be a contributing factor. Time restrictions and the

on-going need for nurses to undergo further education might impede the expansion of oncology nurses' responsibilities in TRAE management [10, 11]. Immunotherapy management guidelines, suggestions for adverse events (AEs), and patient-directed materials to aid in enhancing treatment tolerance have been developed by oncology nurses via joint efforts [12].

II. LITERATURE REVIEW

It is common for oncology nurses to spend the majority of patient time interacting with healthcare providers. To this end, oncology nurses play a crucial role in ensuring that patients get the necessary support, information, and monitoring and management of adverse events (AEs) to help them comply with their treatment plans and tolerate them better. Axitinib and similar drugs are self-administered orally twice a day, whereas intravenous infusion is often used to deliver IO medications in clinics every 2-6 weeks.

Inadequate AE management is especially common among certain populations, including the elderly, those living alone, and those dealing with many health conditions [13]. In an ideal world, patients would make many clinic appointments before starting treatment. Building rapport and educating patients during this period is essential. Instructional materials should include the following: the therapy's mechanism of action, the patient's anticipated reaction to treatment, the possible adverse events (AEs), how to recognize them, whom to call in the event of an AE, and the significance of sticking to treatment regimens [6]. We may discuss possible drug-drug interactions, address typical concerns, questions, and expectations, and educate on which foods to avoid, if relevant, during this interaction [6].

Patients with this malignancy and their loved ones, as well as oncology nurses, must get education on TRAE management, when and how to contact healthcare providers, and other self-care strategies [14]. This is of utmost importance when starting therapy or receiving a first diagnosis. "Effective education, comfort, and clear directions on what to do if an adverse event arises are vital and may reduce patient anxiety and self-care [15]." Since education for possible TRAEs generally focuses on worst-case scenarios, which can be overwhelming, these factors are essential. Those TRAEs that are initially manageable at home should also be the primary focus of education, along with instructions on how to recognize when symptoms need immediate medical attention. One of the most significant ways to make patients feel more comfortable throughout treatment is to educate them about TRAEs and management measures before therapy even begins [16]. Notifying their healthcare personnel as soon as possible of any adverse events (AEs) is crucial [17].

Reports have shown that patients with advanced cancer have less weariness when oncology nurses monitor and intervene for physical symptoms [18]. Gathering a thorough history of the patient's fatigue—its onset, pattern, duration, changes over time, variables that alleviate it, and those that contribute to it—is of the utmost importance. Making sure patients drink plenty of water and eat well is another key part of patient education. Also, it might be helpful to talk about energy conservation so that patients can establish reasonable goals and develop a pattern that incorporates rest, delegating tasks, and activity during peak energy periods [19].

III. METHODOLOGY

Using a review-based technique, this research delves into the critical role of nurses in improving patient well-being and reducing side effects of liver cancer treatment. The process is based on systematically reviewing clinical trials, academic publications, and evidence-based recommendations to find out what people already know about the issue. This method allows for a thorough comprehension of the present nursing practices and how well they work when used in the treatment of liver cancer.

We used PubMed, CINAHL (Cumulative Index to Nursing and Allied Health Literature), Scopus, and Google Scholar to search for literature extensively. Articles pertaining to liver cancer, hepatocellular carcinoma, nursing care, oncology nursing, side effect management, symptom control, and patient well-being were found via the use of precise keywords and search phrases, which were used in a variety of compositions. To guarantee that current and therapeutically relevant material was included, the search was restricted to papers published in English between 2013 and 2024.

Articles from peer-reviewed journals, clinical trials, review papers, and observational studies, including nursing treatments or views on adult patients with liver cancer, were included in the review. Exclusion criteria included studies' exclusive focus on pediatric populations, absence of clinical significance, or reliance on opinion rather than facts. This made sure that the chosen literature helped shed light on the nursing responsibility for minimizing adverse effects and maximizing health.

Emotional and psychological support, patient education, palliative care, symptom treatment (including pain, exhaustion, and nausea), and pertinent data extraction followed the study selection. Our goal in doing this study was to catalog typical nursing practices, assess how these practices affected patient outcomes, and recommend changes or more studies in this area. The theme analysis was useful in bringing together data from several research to generate a unified view of nurses' roles in the treatment of liver cancer.

There were no ethical problems or dangers regarding patient anonymity since the research only used secondary data from public sources. Hence, official clearance from an ethical committee was unnecessary. Nevertheless, in order to maintain neutrality, openness, and the absence of plagiarism, the review was executed with academic integrity, and all material was appropriately attributed.

This review-based strategy has certain drawbacks, but it also has some virtues. There may be publication bias that favours research with good results, and it also depends on the quality and availability of the current literature. In addition, drawing firm findings or broad generalizations may be difficult due to a lack of primary data collection, which limits the scope of the investigation.

Finally, the technique based on reviews offered a framework for systematically investigating the many facets of nurses' roles in the treatment of patients with liver cancer. The research provides important insights into nurse treatments that might enhance the quality of life for persons receiving liver cancer therapy by reducing side effects and synthesizing current information.

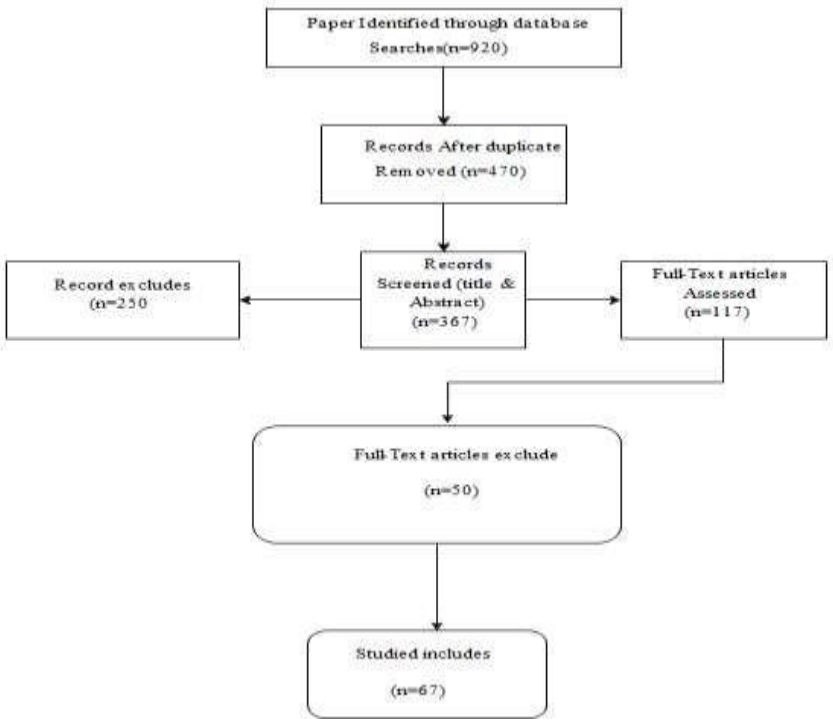

Figure 1: Prisma diagram for literature review

IV. RAPPORT AND EMOTIONAL SUPPORT

It is reasonable to assume that cancer and its treatment will cause some mental suffering in patients. Distress like this may lower patients' QoL and lead to less-than-ideal medication adherence, both of which have a detrimental effect on treatment results [20]. The emotional health of cancer patients' loved ones and caregivers may also suffer as a result of the disease [21].

Because they often interact with patients and their loved ones on a first-name basis, oncology nurses are in a prime position to gauge the emotional and mental well-being of those dealing with HCC or RCC and provide individualized emotional support [22]. Key to providing such assistance is establishing a solid connection between nursing personnel, patients, and caregivers [23]. For instance, despite the patient's complicated care pathway and fluctuating care needs, a case report of a patient with RCC and skeletal metastases [24] describes how the patient managed their anxiety and maintained a good quality of life with the help of their healthcare providers. "In addition, a study comparing hospice nursing care to routine care for patients with advanced liver cancer (n = 166) indicated that hospice nursing care improved pain management, quality of life (QoL) in the days leading up to death, satisfaction with nursing overall, and education and counselling for core family members [25]."

Patients' quality of life may be improved by psychological therapies, such as relaxation and emotional expression, according to a comprehensive review of 36 researches on HCC [26]. "Focusing on education and psychosocial support, managing symptoms early in the disease trajectory, and on-going assessment of physical symptoms, emotional distress, and spiritual well-being were among the nurse-led, home-based interventions that addressed multiple QoL dimensions that could produce positive outcomes in a thorough literature review that aimed to identify effective interventions for quality of life in Chinese patients with HCC (18 RCTs, 3 of which were conducted in mainland China) [27]." Quality-of-life interventions conducted by nurses should also include families, according to the review's authors [27].

Taking care of terminally ill patients may put a heavy emotional strain on nurses and other caregivers providing end-of-life care. The event had an impact on the personal lives, careers, and 'life philosophy' of the 21 nurses who had cared for patients with HCC and catastrophic gastrointestinal haemorrhage, according to a survey [28]. Nurses should have instruction on caring for the dying, training to enhance their coping abilities, and support for their mental health, according to the poll authors. "Longitudinal research with thirteen family caregivers indicated that nurses may still play a significant role in ensuring prompt referral for palliation to maximize the management of pain, symptoms, and quality of life (QoL) when end-of-life care is delivered by family or caregivers [29]."

V. EDUCATION

There are several ways in which oncology nurses may contribute to patient education. After a patient or caregiver has received an initial diagnosis, nurses may determine whether they are prepared to learn about the disease's progression and treatment choices, as well as their educational requirements [20]. To aid nurses in starting these types of instructional exchanges, validated evaluation instruments may provide a framework [20]. "As an example, the Functional Assessment of Cancer Therapy (FACT) Kidney Symptom Index assesses the psychological and physiological issues shared by cancer patients with researchers, including worries about the course of their disease, a lack of optimism, and problems at home [30], and it could serve as a springboard for further conversations about these topics."

Patients (and their caregivers) may benefit from collaborative care talks when they are well-informed about treatment objectives and possible adverse events (AEs) via nurse-led education prior to treatment [31].

Oncology nurses are vital in patient education, expectation management, care delivery, and monitoring during therapy and procedural procedures (such as radiographic and thermal ablation) [32]. Assisting with medication management, advising on possible problems, supporting care planning and coordination, and easing the transition to community care are all areas where patients may benefit from nurse-led education throughout their hospitalization [33]. Which has one of the highest rates of readmission among all malignancies [33], making pre-discharge education more relevant.

Education must be individualized to meet the cultural, cognitive, and emotional requirements of patients at every point in the treatment pathway; coaching interventions that include success stories may be very helpful [30]. Patients and their families may also benefit from being linked to national support groups or, with their consent, to other patients. [30] i.

VI. PROMOTION OF SELF-MANAGEMENT

Patients are now more likely to be able to self-administer therapy at home, thanks to the rise of oral medicines [34, 35]. Although patients' everyday lives are less disrupted with home administration compared to hospital-based administration, patients nonetheless have a larger obligation to follow their regimen closely and remain vigilant for adverse events (AEs) [30]. By examining patients' diaries to ensure medication adherence, giving tools and written instructions for complex regimens, repeating self-administration procedures, and enabling telephone follow-up and monitoring, nurses may help patients in self-management [36]. Because non-adherence may lower survival and raise recurrence and healthcare expenses, it is crucial to facilitate optimal adherence to cancer therapy [37]. “Improving self-care efficacy and quality of life relative to traditional treatment was shown to be a major outcome of a recent research that evaluated a new self-management-based model of nursing care (the 5A model) in a cohort of 97 patients with HCC”. Improvements in patient satisfaction with nursing care and reductions in cancer-related tiredness were also linked to the approach [38].

VII. SYMPTOM AND ADVERSE EVENT MONITORING AND MANAGEMENT

A variety of psychological and physiological symptoms may impact the quality of life for patients with [39]. Quality of life (QoL) often decreases in the latter stages of an illness and as a consequence of treatment-related complications [40]. Patients' functional status and quality of life may be preserved with good symptom treatment, especially in cases when the illness cannot be surgically removed [41]. Assuring prompt reporting of symptoms and referral to appropriate supportive care services, as well as counselling and education on symptoms associated with the illness, are all responsibilities of oncology nurses [40]. The ability to adapt treatment plans to each patient's unique preferences, health state, and illness status is an essential skill for nurses, and they should be well-versed in evidence-based recommendations for the management of common symptoms [40]. In the end, it is recommended that patients get treatment via a multidisciplinary approach in which the team takes the initiative to address patients' symptoms [40].

Patients receiving patient treatment should be knowledgeable of the many potential side effects of their medication so that they may take responsibility for the monitoring and management of any serious complications. Drug cessation, decreased quality of life, and suboptimal outcomes might result from them if patients do not expect them or if they are not well handled by their healthcare providers and caregivers [42]. In both patients, the importance of nurses' roles in the management of adverse events and their consequences for treatment adherence has been acknowledged [43]. Patient outcomes may be improved by the following: anticipating, recognizing, and promptly and appropriately managing adverse events (including, if needed, referring to a specialist) [44].

There may be times throughout treatment when adjustments to concurrent drugs or checks for drug interactions are needed [45]. It is important to monitor and record adverse events (AEs) associated with therapy, and nurses can help patients and caregivers understand this [46]. In this case, it might be helpful to provide patients with an information sheet when they are released from the hospital [47].

It might be tough to optimize AE management due to the wide variety of treatment-related AEs and the ever-changing therapeutic landscapes for patients. The pathogenesis, incidence, evaluation, and clinical manifestation of adverse events (AEs) are rapidly evolving areas of study, and oncology nurses are obligated to stay abreast of these developments [48]. "Recommendations from a European nursing task force on managing the side effects of targeted therapies [49] and the management of dermatologic side effects of immunotherapies for advanced RCC [48] are two examples of the many articles published on nurse-led management of adverse events with patients' treatments." In addition, there are reports on the use of pazopanib for metastatic RCC [36], high-dose interleukin-2 treatment for RCC [51], and sorafenib for advanced patients [50]. The knowledge and expertise of oncology nurses and other

members of the care team are crucial in resolving some adverse events (AEs) that are challenging to manage, such as tiredness and diarrhea [52]. "The nurse's responsibility in identifying and managing adverse events extends beyond the possible toxicities of targeted therapies to include the identification of rare complications like pulmonary and cerebral issues (as documented in case reports [53] and in HCC, severe gastrointestinal sickness symptom cluster after trans arterial chemoembolization (TACE) (as reported in questionnaire-based studies [54] with a sample size of 277 patients)." The nurse plays an important role in ensuring the safety of patients undergoing TACE, and the literature emphasizes the significance of trust and good communication among all members of the healthcare team. Intense nursing care during the preoperative phase improved quality of life, decreased complications, and increased therapeutic benefit in patients undergoing combination trans arterial chemoembolization and microwave coagulation treatment [56].

Patients may be better supported in their treatment choices, and adverse event reporting can be expedited by regular and timely communication between nurses and patients [45]. Results showed that patients with HCC (n = 37) were more likely to comply with their treatment plans after receiving a nurse-led telephone intervention that helped with self-monitoring and adverse event management [57]. Oncology patients who received follow-up calls from nurses lasted an average of 122 days in therapy, whereas patients who had not gotten any nursing assistance lasted just 36 days. "Timely detection and management of sorafenib-related toxicities improved treatment outcomes in patients with HCC (n = 129) in a separate nurse-led intervention trial via telephone follow-up [42]." Both the total number of dosage reductions and the time it took to accomplish such reductions were lower in patients who had nurse follow-up.

VIII. HOLISTIC SUPPORT

It is common for nurses to spend more time directly interacting with patients than other healthcare professionals. They play an essential role as members of multidisciplinary teams (MDTs), providing care for patients with RCC and HCC at every stage of the treatment pathway. As a result, nurses may effectively oversee care from a holistic perspective and enhance it as a whole [43].

For nurses caring for patients with liver illness, the Australasian Hepatology Association has drafted ninety-five consensus-based guideline statements [58]. Out of the 90 statements, 19 were specific to HCC and bolster the comprehensive role of nurses. "These statements address: monitoring, educating patients and caregivers, helping with active self-management, care coordination within the multidisciplinary team, treatment, referrals, and continuing education and support for other healthcare providers managing patients with HCC [59]."

Over 500 patients with liver cirrhosis and HCC were compared in a study that compared "comprehensive" and "conventional" nursing care. The results showed that comprehensive nursing management significantly improved satisfaction, quality of life, post-operative complications (each $p < 0.001$), and survival rates ($p = 0.035$) [60]. Physical and mental health, disease prevention and treatment, health promotion, and family support were all part of the comprehensive care that was provided in accordance with the 2013 Operation Guide for Comprehensive Nursing Care [61]. In different research including 105 patients receiving radiation for HCC, the group that received "whole-course, high-quality" nursing care had fewer adverse responses, lower ratings for anxiety and sadness, and considerably higher patient satisfaction compared to the group that received "routine care" (all with $p < 0.05$) [62]. A different research compared the complication prevention rates of regular care with predictive nursing care in 66 patients with liver cancer. Predictive nursing care is a systematic and structured intervention. Patients' urinating time, pain disappearance time, length of hospital stays, complication incidence, and nursing satisfaction were all positively affected by using the technique (all $p < 0.05$) [63]. "Comfortable nursing" improved quality of life and satisfaction with the nursing service compared to usual care in a group of 68 patients with HCC. "This enhanced role includes targeted psychological counselling, more considerate pain management, ward aesthetics (e.g., use of plants and flowers), and dietary counselling [64]".

Clinical research nurses provide a whole range of services to patients participating in clinical trials, including counseling, therapy, psychological rehabilitation, spiritual care, symptom management, palliative care, and support and guidance [65]. The program significantly decreased the occurrence (but not the severity) of anxiety ($p = 0.024$), improved the quality of life ($p < 0.05$), and prolonged overall survival ($p = 0.026$) in a randomized clinical trial that compared basic care with an extensive education and care program in 136 patients with HCC who underwent surgical resection [66].

Patients' mental health (depression and anxiety) qua, quality of life (QoL), and satisfaction with QoL may be greatly improved with intense nursing care, according to a recent systematic analysis of five studies on liver cancer. Further, bigger studies are needed to validate the results, and the authors also recognized that there are not many original research publications assessing nursing care for patients with liver malignancies [64].

In the end, it all comes down to the patient's unique requirements when it comes to providing holistic treatment. This includes considering any symptoms that the patient finds particularly troubling, even if they are not immediately noticeable, such as potential sexual dysfunction in HCC patients [67].

IX. CONCLUSION

Advanced practice doctors, pharmacists, oncologists, and interdisciplinary experts form a complete team that includes oncology nurses. When individuals are informed about what to anticipate and where to get the treatment they need, patient education plays a crucial role in AE management and self-care promotion. In order to meet the unique supportive care requirements of patients undergoing innovative cancer therapies, oncology services must be adaptable and provide tailored patient support, including the assistance of trained oncology nurses. In order to maximize treatment results and quality of life, the patient and caregiver must communicate early and consistently about the occurrence of adverse events.

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