Postprint: Case Management for Patients Undergoing Chemotherapy for Gastrointestinal Tumors During the COVID-19 Pandemic

Authors: Huang Xiaoying, Yang Heng, Yang Heng

Date: 2023-03-06T00:00:00+00:00

Abstract

Objective: To investigate the application effectiveness of case management in gastrointestinal cancer chemotherapy patients during the COVID-19 pandemic.

Methods: According to the COVID-19 prevention and control guidelines issued by the National Health Commission, case management was implemented for gastrointestinal cancer chemotherapy patients through a multidisciplinary system. Research data from August 1, 2022 to September 30, 2022 were selected as the observation group, and data from June 1, 2022 to July 31, 2022 were selected as the reference group. The chemotherapy completion rate and nursing satisfaction were compared between the two groups.

Results: From August 1 to September 30, 2022, the chemotherapy completion rate increased by 6.51%, and nursing satisfaction increased by 6.01%. No suspected cases were identified in either group of patients.

Conclusion: During the pandemic, implementation of whole-course case management for gastrointestinal cancer chemotherapy patients ensured orderly and standardized chemotherapy and improved clinical nursing quality on the basis of implementing epidemic prevention and control.

Full Text

Preamble

This preprint is published on NursRxiv—the preprint platform for nursing science. DOI: 10.12209/issn2708-3845.20230131005. Version: V1.0. Funding: Shanghai University of Traditional Chinese Medicine Talent Program Project (2022HLXL10). Corresponding author: YANG Heng, E-mail:

Case Management for Gastrointestinal Cancer Patients Undergoing Chemotherapy During the COVID-19 Pandemic

HUANG Xiaoying, YANG Heng
Department of Oncology, Longhua Hospital Affiliated to Shanghai University of Traditional Chinese Medicine, Shanghai, 200032

Abstract

Objective: To explore the effect of case management in gastrointestinal cancer patients undergoing chemotherapy during the COVID-19 pandemic. **Methods:** According to the COVID-19 prevention and control guidelines issued by the National Health Commission, case management for gastrointestinal cancer chemotherapy patients was implemented through a multidisciplinary team approach. Study data from August 1, 2022 to September 30, 2022 were selected as observation values, while data from June 1, 2022 to July 31, 2022 served as reference values. The chemotherapy completion rate and nursing satisfaction were compared between the two groups. **Results:** From August 1 to September 30, 2022, the chemotherapy completion rate increased by 6.51% and nursing satisfaction improved by 6.01%. No suspected COVID-19 cases were identified in either group. **Conclusion:** During the pandemic, comprehensive case management for gastrointestinal cancer chemotherapy patients ensured orderly and standardized chemotherapy delivery while implementing epidemic prevention and control measures, thereby improving clinical nursing quality.

Keywords: COVID-19; Gastrointestinal neoplasms; Chemotherapy; Case management

Introduction

The COVID-19 pandemic continues to spread globally, with notably increased frequency of local outbreaks across China this year, creating a more severe and complex prevention and control situation [1]. Cancer patients have compromised immune systems, and chemotherapy patients experience further immunosuppression due to adverse effects such as myelosuppression, nausea, and vomiting, making them a susceptible population for COVID-19 [2]. To mitigate pandemic impacts, our department implemented case management for gastrointestinal cancer chemotherapy patients, which optimized treatment processes while effectively implementing infection control measures, ensuring orderly and standardized chemotherapy delivery.

Methods

1. Data Collection

Study data from August 1, 2022 to September 30, 2022 were selected as observation values, while data from June 1, 2022 to July 31, 2022 served as reference values.

2.1 Multidisciplinary Team Reorganization

In response to the pandemic, a case management team was established with departmental leadership support, comprising case managers, medical oncologists, clinical pharmacists, specialist nurses, psychotherapists, nutritionists, infection control staff, and social workers. The case manager was responsible for developing collaborative protocols, screening personnel, quality control, external liaison, communication coordination, and resolving complex issues. To better address pandemic challenges, the infection control department provided guidance on COVID-19-related protocols, with the primary goal of ensuring safety for gastrointestinal cancer chemotherapy patients and reducing cross-infection risks.

2.2 Assessment Phase

Patient information files were established, including demographic data, medical history (such as disease and medication history), insurance type, and religious beliefs. The patient's social support system was assessed to build a strong nurse-patient relationship. Patient self-care ability, psychological status, pain, and nutritional status were evaluated to understand patient needs and preferences. Additionally, patients' understanding of chemotherapy and their venous access status were assessed.

2.3 Planning Phase

First, treatment and nursing schedules were arranged rationally: case managers tracked patients currently in the chemotherapy phase, reminded them to contact physicians for chemotherapy appointments in advance, and ensured attending physicians prepared electronic admission certificates and arranged beds, with case managers coordinating registration information. For patients unable to receive chemotherapy on schedule due to the pandemic, case managers coordinated with attending physicians to arrange treatment at nearby facilities, appropriately delay chemotherapy, or switch to oral chemotherapy, with psychotherapists providing psychological support. Patients switched to oral chemotherapy received medication guidance, with follow-up on efficacy and adverse effects. Second, patients were guided to complete nucleic acid testing before admission: case managers conducted epidemiological screening according to hospital management regulations during the pandemic and instructed patients to complete nucleic acid testing, confirming no abnormalities before admission.

2.4 Implementation

2.4.1 Pre-Chemotherapy Based on individual patient conditions, case managers communicated with physicians about chemotherapy protocols. All examinations were completed, including blood tests and liver/kidney function assessments. For patients with decreased white blood cell counts, long-acting formulations were prioritized to ensure chemotherapy safety while reducing hospital visits [3]. Nursing plans were developed collaboratively, introducing chemotherapy protocols, potential adverse effects, and countermeasures to enhance patients' confidence in overcoming the disease. During the pandemic, wards implemented closed management, requiring patients to wear masks throughout their stay, refrain from moving around the ward area, and remain in the hospital until discharge. Family caregivers were required to be consistent and enter the ward area with valid companion passes.

2.4.2 During Chemotherapy Chemotherapy nursing was provided by designated nurse members of the case management team. Patient monitoring was intensified during chemotherapy to observe for adverse effects, with timely feedback and referrals when necessary. Health education was enhanced through multiple online and offline channels, explaining chemotherapy toxicities and management strategies to improve patient self-management capabilities. Case managers collaborated with nutritionists to develop personalized nutritional plans to reduce chemotherapy side effects and enhance treatment tolerance. For patients unable to complete chemotherapy as scheduled, case managers investigated reasons for interruption, such as abnormal liver/kidney function or myelosuppression, reported to attending physicians for assistance, observed laboratory results, and contacted pharmacists and physicians to adjust chemotherapy protocols. Multidisciplinary team (MDT) meetings were organized to discuss nursing challenges and propose solutions.

2.4.3 Discharge Day On discharge day, case managers completed discharge assessments, including evaluations of self-care ability, psychological status, nutritional screening, and social support systems, and developed discharge plans and subsequent treatment protocols collaboratively with patients and families. Discharge health education was provided, covering follow-up appointments, medications, diet, activities, and functional exercises. Patients with stomas or catheters were informed about relevant care precautions and outpatient follow-up schedules. Patients were informed of their next follow-up time and encouraged to contact case managers proactively for assistance with health issues.

2.4.4 Follow-up Period To reduce infection risks from hospital visits, patients were encouraged to use internet hospitals and service platforms for consultations and prescription services, with hospital-arranged medication delivery to prevent treatment interruption due to drug shortages. Case managers used WeChat platforms to push medication administration precautions and guide patients in maintaining medication use records. Follow-up was conducted via

WeChat and telephone, guiding patients to schedule examinations online, check results, or undergo tests at nearby facilities, with results reported to physicians for treatment guidance. Patients were guided in psychological interventions including five-element music therapy, relaxation training, and mindfulness meditation to provide psychological support, promptly address negative emotions, and cultivate positive attitudes. Nutritional guidance and appropriate exercise recommendations were provided through online health education lectures, with push notifications about online platform operation procedures, COVID-19 basic knowledge, home isolation precautions, and electronic health education manuals. Stoma and catheter maintenance could be completed during hospitalization alongside chemotherapy, with local maintenance or home visit appointments available during intervals. For patients experiencing maintenance difficulties, case managers contacted outpatient specialist nurses to provide appropriate extension recommendations [3]. Patients were encouraged in self-management, including medication adherence, rest and sleep, functional exercise, psychological adjustment, and disease management, with immediate readmission for review upon detecting abnormalities.

2.5 Evaluation and Feedback

Monthly multidisciplinary case management meetings were held to evaluate protocol implementation and nursing measures, including chemotherapy management goal achievement, adverse effect severity during chemotherapy, health education implementation, catheter maintenance, nutritional status, psychological status, and quality of life. Unmet nursing goals were promptly analyzed and addressed.

3. Observation Indicators

[Figure 1: see original paper] Case Management Flowchart

3.1 Chemotherapy Completion During the pandemic, patients who could return to the hospital as scheduled or complete chemotherapy locally according to the planned protocol were recorded as completing chemotherapy. Those who refused, interrupted, or delayed chemotherapy for any reason were recorded as not completing chemotherapy. Total chemotherapy completion rate = (hospital chemotherapy + local chemotherapy) / total chemotherapy cases × 100%.

3.2 Nursing Satisfaction Before discharge, patients completed our hospital' s self-designed nursing satisfaction questionnaire via Questionnaire Star, with responses categorized as very satisfied, satisfied, neutral, somewhat dissatisfied, or very dissatisfied. Total satisfaction rate = (very satisfied + satisfied) / total cases × 100%.

Results

From June 1, 2022 to July 31, 2022, there were 86 gastrointestinal cancer chemotherapy patients, including 47 hospitalized chemotherapy patients in our department, 30 local chemotherapy patients, and 9 deferred chemotherapy patients. From August 1, 2022 to September 30, 2022, 10 new chemotherapy patients were added, while 2 patients from the previous phase completed treatment and were excluded, totaling 94 patients, including 77 hospitalized chemotherapy patients, 13 local chemotherapy patients, and 4 deferred chemotherapy patients. Through effective case management and standardized infection prevention and control measures, the chemotherapy completion rate increased by 6.51% and nursing satisfaction improved by 6.01%. No suspected COVID-19 cases were identified in either group. See and .

TABLE:1 Chemotherapy Completion Status

TABLE:2 Nursing Satisfaction

Discussion

5.1 High Infection Risk and Need for Comprehensive Management in Gastrointestinal Cancer Chemotherapy Patients

Since the COVID-19 outbreak, the virus has continuously mutated, with the Omicron variant spreading extremely rapidly. Gastrointestinal cancer represents a large population of cancer patients in China. Following comprehensive treatments including surgery, chemotherapy, radiotherapy, and targeted immunotherapy, these patients have compromised immunity with decreased white blood cells and neutrophils, significantly increasing infection risk [2,4-5]. Once infected with COVID-19, tumor progression accelerates and conditions worsen [6-7]. Case management involves case managers collaborating with multidisciplinary teams to provide holistic, continuous care [8-9], playing a crucial role in facilitating physician-patient communication and coordinating medical resources. Implementing comprehensive case management for gastrointestinal cancer chemotherapy patients during the pandemic not only aligns with modern management concepts and treatment perspectives and meets patient needs, but also protects patients from infection risks.

5.2 Case Management Improved Chemotherapy Completion Rates During the Pandemic

During the pandemic, some patients experienced treatment delays due to control measures or infection concerns. Research indicates [10] that delayed treatments primarily involved chemotherapy, targeted therapy, and radiotherapy. Treatment postponement and urgent concerns about tumor progression and life expectancy also generated anxiety and worry [11]. Therefore, the priority for gastrointestinal cancer patients requiring or undergoing chemotherapy was to protect them from viral infection while optimizing and adjusting chemotherapy

care protocols to minimize pandemic impacts. Based on assessment results, case managers developed clinical care protocols and used network information platforms to deliver continuous, individualized guidance through images, text, and videos, overcoming time and geographical barriers to enable seamless healthcare communication. This enhanced patient understanding of chemotherapy, reduced toxic side effects, decreased self-perceived burden, and fostered patient cooperation, mitigating pandemic impacts on disease progression, increasing effective treatment time, and promoting successful chemotherapy completion [12-13].

5.3 Case Management Improved Nursing Satisfaction During the Pandemic

Patients experienced distress when unable to receive hospital treatment due to the pandemic, and factors such as environmental changes, role transitions, and temporary separation from family after admission created varying degrees of psychological pressure, leading to anxiety and depression [14]. Research shows that case management effectively alleviates negative emotions in cancer patients during the COVID-19 pandemic [15]. The case management model transformed existing management approaches and optimized chemotherapy processes to meet individualized patient needs and improve satisfaction. The case management team provided treatment management and condition monitoring, helping patients familiarize themselves with procedures quickly, reducing ineffective waiting time, minimizing cross-infection risks, and maintaining effective communication with patients and families [16], achieving continuous nursing care from admission through discharge and follow-up, meeting patients' holistic physical and psychological needs, and enhancing trust and security.

Conclusion

During the pandemic, case managers coordinated medical resources through multidisciplinary teams, providing seamless, continuous medical care for gastrointestinal cancer chemotherapy patients, ensuring scientific and effective nursing management, and improving chemotherapy completion rates and nursing satisfaction. Under normalized pandemic prevention and control, the case management model still has limitations. While minimizing pandemic impacts, further improvements are needed in expanding coverage, broadening communication channels, meeting patients' continuous and dynamic nursing needs, and refining infection prevention measures and nursing management strategies.

Conflict of Interest Statement

The authors declare no conflicts of interest.

References

[1] Chinese Government Website. Press conference of the State Council on joint prevention and control mechanism [EB/OL]. (2022-07-21) [2022-10-07]. http://www.nhc.gov.cn/xcs/fkdt/202207/10b358da7913436aabd12fc1cf6a8f5b.shtml.

[2] YANG Z Y, TAN K, DU X L, et al. Emergency management and protection measures for tumor patients during new coronavirus epidemic[J]. J Mod Oncol, 2020, 28(6): 1053-1055. (in Chinese)

[3] LIU L F, LUO Y Z, ZHANG H T. Case Management of Breast cancer patients during the coronavirus disease 2019 outbreak[J]. Chin J Nurs, 2020, 55(S1): 385-388. (in Chinese)

[4] ZENG J, PENG S K, LEI Y, et al. Clinical and imaging features of COVID-19 patients: analysis of data from high-altitude areas[J]. J Infect, 2020, 80(6): e34-e36.

[5] MOUJAESS E, KOURIE H R, GHOSN M. Cancer patients and research during COVID-19 pandemic: a systematic review of current evidence[J]. Crit Rev Oncol, 2020, 150: 102972.

[6] LIANG W H, GUAN W J, CHEN R C, et al. Cancer patients in SARS-CoV-2 infection: a nationwide analysis in China[J]. Lancet Oncol, 2020, 21(3): 335-337.

[7] LIN D D, CHEN B, LI Y, et al. Clinical characteristics of cancer patients with COVID-19 and suggestion for patients' management strategy during the epidemic novel coronavirus period[J]. J Mod Oncol, 2020, 28(17): 3096-3098. (in Chinese)

[8] SONG Y, GONG M, SHE X J. Concept and application of case management[J]. Chin Nurs Manag, 2011, 11(12): 92-93. (in Chinese)

[9] XIA L P, FAN F, BIAN L Y, et al. Overview of role function and role confusion of case manager[J]. Chin J Pract Nurs, 2014, 30(30): 70-72. (in Chinese)

[10] CHEN D M, ZHANG Y, LV L Y, et al. A survey of treatment and psychological status of breast cancer patients during the pandemic of COVID-19[J]. J Mod Oncol, 2020, 28(12): 2179-2182. (in Chinese)

[11] WANG Y, YIN M, TAI S, et al. Based on the thinking of reverence for life: brief exploration on humane care of cancer patients in confined operation after COVID-19[J]. Chin Med Ethics, 2021, 34(6): 741-745. (in Chinese)

[12] LI J H, LI X Y, TAN Y, et al. Application of the multidisciplinary-team management model in patients with breast cancer' s Chemotherapy-Induced Nausea and Vomiting[J]. Chin Nurs Manag, 2018, 18(3): 367-372. (in Chinese)

[13] WANG X W. Effect of case management combined with multidisciplinary nursing on toxic and side effects of gynecological malignant tumor patients un-

dergoing chemotherapy[J]. Mod Nurse, 2021, 28(4): 78-81. (in Chinese)

[14] MEN Y, DONG L, HE W L. Experience of young patients hospitalized in emergency intensive care unit[J]. Chin J Nurs Educ, 2019, 16(3): 225-228. (in Chinese)

[15] DENG Y, CHU Y X. Influence of case management on treatment compliance and negative emotions of breast cancer patients during epidemic period[J]. Mod Nurse, 2021, 28(12): 99-102. (in Chinese)

[16] ZONG Z L, KE Q, QIN B, et al. Application of high-quality nursing path in the work of rotating nurses in neurology department[J]. J Clin Nursing' s Pract, 2017, 2(15): 62-63. (in Chinese)

Note: Figure translations are in progress. See original paper for figures.