

## Study Protocol

# **A study protocol on evidence generation of standard nursing protocol on chemotherapy-induced neutropenia among staff nurses**

### **ABSTRACT**

**BACKGROUND:** -Neutropenia is a condition that can occur in chemotherapy patients. Neutropenia affects roughly one out of every three chemotherapy patients. If neutropenia develops, the patient's health is affected, and the chemotherapy regimen or dose must be extended to allow the body creates new neutrophils. Even though neutropenia is common during chemotherapy, severe neutropenia is uncommon, and infections caused by it can result in significant morbidity and mortality. The protocol can help nurses make decisions about what type of care is best for their patients.

### **OBJECTIVES**

- 1.To report practices at baseline and post-intervention of staff nurses regarding chemotherapy-induced neutropenia.
- 2.To develop and implement the evidence-based standard nursing protocol on chemotherapy-induced neutropenia among staff nurses
- 3.To associate the knowledge and practice score with selected demographic variables.

**Material and Method:** -A Quasi-experimental research design was utilized in the current study. Pre/post-test design was utilized so the participants' pre-test results were considered as the control for comparing their post-test results. A non-probability purposive sampling technique will be used to collect the data. The study included 100 oncology nurses' knowledge and practice assessed by using a structured questionnaire and checklist. The study will be conducted in a selected hospital in the Wardha district.

**Expected result:** -This study is on evidence generation of standard nursing protocol on chemotherapy Induced neutropenia among staff nurses hence it will be assessed by evidence generation of the standard nursing protocol. Will be accepted as the results of intervention that leads to improved Knowledge regarding chemotherapy Induced neutropenia among staff nurses.

**Keywords:** -Chemotherapy-induced neutropenia(CIN), Nursing protocol, Oncology nurses, Neutrophil

## **INTRODUCTION**

Cancer is defined as the uncontrolled, abnormal development and spread of cells[1]. More than half of all cases of cancer are primarily caused by a variety of unhealthy risk factors. Cancer is a massive global burden and, after cardiovascular illnesses, it is the second biggest cause of death. Furthermore, cancer is estimated to account for twenty six million new cases and seventeen million deaths by 2030[2].

Chemotherapy treatment for cancer is believed to trigger a loss of white blood cells resulting in a condition known as chemotherapy-induced neutropenia. When neutropenia is severe, it increases the risk of systemic infections,[3] which can lead to disease and death. According to the National Institute for health and care guidelines "check their fever if they feel sick and call in the hospital as fast as possible." Patients suffering from febrile neutropenia (FN) will be admitted to the hospital for an evaluation, which will involve a complete blood cell count (CBC)[4].

The development of an evidence-generating process must be associated with clinical guidelines and a daily examination of nurses based on their needs. The protocol can help nurses make decisions about what type of care is best for their patients. Clinical nursing procedures may increase nursing performance by allowing nurses to act independently. The protocol includes a comprehensive, up-to-date review of the condition, as well as a rationale for each nursing intervention. Nursing protocols are also an excellent educational resource for nurses [5].

Neutropenia is a condition that can occur in chemotherapy patients. Neutropenia affects roughly one out of every three chemotherapy patients. If neutropenia develops, the patient's health gets affected. The chemotherapy regimen or dose must be extended to allow the body creates new neutrophils. Even though neutropenia is common during chemotherapy, severe neutropenia is uncommon, and infections caused by it can result in significant morbidity and mortality. Specific guidelines and protocols can help nurses with early interventions and prompt care to reduce the problems and implications of neutropenia, such as infection prevention measures, what to do when signs and symptoms of infection appear. Staff members should be well trained to improve patient outcomes and provide appropriate education, as well as become aware of the current state of neutropenia knowledge by knowing the evidence and standards for cancer patients who may develop chemotherapy-induced neutropenia[6].

## **Need of the Study**

More routine in-service training sessions for nurses are needed to keep their information of chemotherapy-induced neutropenia up to date. In addition to routine onsite supervision of nurses, hospital administration should make current nursing standard protocols available to nurses to guide their performance. The presence of strong evidence-based guidance can improve clinical care's effectiveness and consistency. Nurses must quickly identify patients at higher risk of being neutropenic and supervise those who already have it to effectively undertake interventions to improve clinical outcomes and standard of living in chemotherapy patients. Nurses must also be aware of the physical, psychological, and financial aspects to effectively support patients. During the CIN experience, nurses can aid the families in advocating for one another and supporting the family's integrity; while the immediate benefits may not be apparent to the nurse, the long-term benefits are significant[7].

## **Methodology**

A Quasi-experimental research design was utilized in the current study. Pre/post-test design was utilized so the participants' pre-test results were considered as the control for comparing their post-test results. A non-probability purposive sampling technique will be used to collect the data. The study included 100 oncology nurses' knowledge and practice assessed by using a structured questionnaire and checklist. The study will be conducted in a selected hospital in the Wardha district.

## **CRITERIA OF THE STUDY**

### **Inclusion Criteria:**

- Staff nurses working in an oncology ward for more than 1 year
- Staff nurses who are willing to participate

### **Exclusion criteria:**

- Except oncology nurses all nurses are excluded
- Staff nurses who are not willing to participate

## **Randomization**

Line listing of nurses obtained from the HR records and at random selection done by the sequential numbered system

## **Intervention**

Develop a standard nursing protocol on chemotherapy Induced neutropenia according to the strong evidences available for nurses' educational needs and assess nurses' knowledge practices related to managing patients with chemotherapy-induced neutropenia with the help of a checklist self-structured questionnaire under the guidance of Associate professor of Medical-Surgical Nursing.

## **CONSENT**

Prior to beginning of the study, the nature of the study explained to the oncology nurses and written informed consent will be taken from the proper authority.

## **Study Tools**

**Tool I:** Socio-demographic data sheet. This was developed to collect data pertinent to nurses' age, years of experience. While patient's sociodemographic sheet elicited data related to patient's age, marital status, education and occupation.

**Tool II :** To develop an standard nursing protocol using the strong evidences available which consist of definition of chemotherapy induced neutropenia, Neutrophil and it's function, Neutropenia stratification which help us to determine the risk and duration of neutropenia, about nadir, risk factors for neutropenia and related events, MASCC risk- index score ( for adults), Risk Assessment for Patients with febrile neutropenia , ECOG Performance Status, detailed history collection and physical examination, Tests and Investigations which have to do in neutropenic patient , hand hygiene practiced by nurses to prevent infection, oral care practiced by nurse, Iv line care practiced by nurses, Instructions of peripheral intravenous line care in neutropenic patients, Environment should provide to neutropenic patients, Precautionary measures to prevent catheter associated urinary tract infection in neutropenic patient (If patient is having catheter

**Tool III:** Nurses' pre/ post knowledge questionnaire was used to measure knowledge level of nurses about chemotherapy induced neutropenia. This tool was administered to nurses before implementation of the protocol, immediately after the implementation as well as after 7 days period to evaluate the gain and retention in knowledge after implementation of the study protocol. It consisted of 20 structured questions related to protocol on chemotherapy induced neutropenia.

**Tool IV:** Neutropenia management observation checklist: data from this tool was collected before implementation of the protocol to assess the impact of protocol on nurses' practice level. It consists of Initial assessment, Investigation, reporting (infection, reporting lab value) and recording (signs and symptoms of infection, nursing intervention).

## **Statistical analysis**

Statistical analysis was done by descriptive and inferential statistics with the help of SPSS 20.0 software.

### **Ethics and dissemination**

Datta Meghe Institute of Medical Sciences (Deemed to be University), DMIMS(DU)/IEC/2021/303. The study will be conducted by the ethical guidelines prescribed by the institutional Ethics Committee on Human Research.

### **Expected outcome/result**

This study is on evidence generation of standard nursing protocol on chemotherapy Induced neutropenia among staff nurses hence it will be assessed by evidence generation of the standard nursing protocol. Will be accepted as the results of intervention that leads to improved Knowledge and practices regarding chemotherapy Induced neutropenia among staff nurses.

### **DISCUSSION**

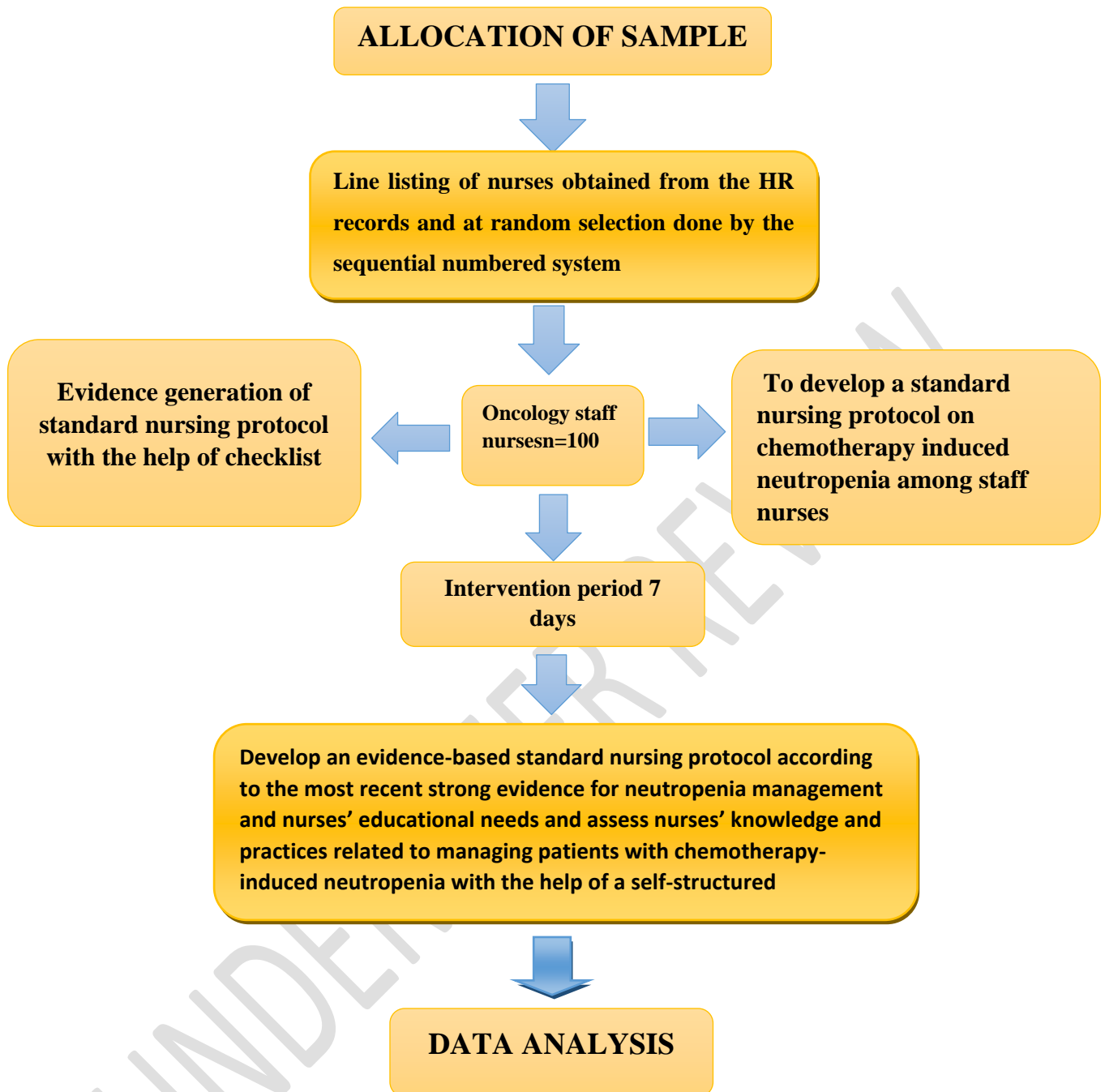
The introduction of clear evidence-based standards can aid in the improvement of clinical practice consistency and quality. The standard nursing protocols are also a valuable learning tool for nurses by following evidence-based guidelines, a nursing protocol can help to enhance clinical practice and possibly reduce CIN consequences[8]

The study was conducted to develop a protocol for nurses and caregivers related to prevention, early detection, and management of chemotherapy-induced neutropenic complications. The quasi-experimental research design was used in the study. The preliminary draft was created after evaluating relevant research and for assessing nurses' and caregivers' current practices about the prevention, early detection, and management of chemotherapy-induced neutropenic consequences. Group discussions were held with nurses working in oncology units. In addition, a checklist for evaluating the protocol was created. Nurses and caregivers were taught as per the developed protocol. According to the study's findings, the current study has produced a set of accurate and reliable written guidelines for nurses and caregivers about the prevention, early diagnosis, and management of chemotherapy-induced neutropenic consequences.[9],[10]

### **Conclusion**

Study findings will be drawn by using statistical analysis.

### **Fig 1- Schematic diagram of study methodology**



## Reference

1. Dighe SP, Shinde RK, Shinde SJ, Anand A. Review on Assessment of Response of Neo-Adjuvant Chemotherapy in Patients of Carcinoma Breast by High Frequency Ultrasound. *J Evol Med Dent Sci.* 2020 Dec 21;9(51):3873–81.
2. Cancer [Internet]. [cited 2021 Jun 18]. Available from: <https://www.who.int/news-room/fact-sheets/detail/cancer>

3. Anand AS, Shinde RK. To Compare the Effects of Adjuvant and Neoadjuvant Chemotherapy on Outcome of Stage III Carcinoma Breast. *J Evol Med Dent Sci*. 2020 Feb 24;9(8):496–501.
4. Gupta A. Management of Chemotherapy Induced Neutropenia – an Unmet Clinical Need. *Am J Biomed Sci Res*. 2019 Aug 10;4(5):313–8.
5. Development of a protocol for nurses and caregivers related to prevention, early detection and management of chemotherapy induced neutropenic complications | *Nursing Midwifery Research* [Internet]. [cited 2021 Jun 18]. Available from: <https://nrfninechd.com/development-of-a-protocol-for-nurses-and-caregivers-related-to-prevention-early-detection-and-management-of-chemotherapy-induced-neutropenic-complications/>
6. Lustberg MB. Management of Neutropenia in Cancer Patients. *Clin Adv Hematol Oncol HO*. 2012 Dec;10(12):825–6.
7. Osman SMT, Mohamed HM. Effectiveness of a Nursing Intervention Protocol for Chemotherapy Induced Neutropenia: Nurses and Patients' Related Outcome. 2016;10.
8. Rosenfeld RM, Shiffman RN. Clinical practice guideline development manual: A quality-driven approach for translating evidence into action. *Otolaryngol--Head Neck Surg Off J Am Acad Otolaryngol-Head Neck Surg*. 2009 Jun;140(6 Suppl 1):S1-43.
9. Development of a protocol for nurses and caregivers related to prevention, early detection and management of chemotherapy induced neutropenic complications | *Nursing Midwifery Research* [Internet]. [cited 2021 Oct 3]. Available from: <https://nrfninechd.com/development-of-a-protocol-for-nurses-and-caregivers-related-to-prevention-early-detection-and-management-of-chemotherapy-induced-neutropenic-complications/>
10. Ankar R, Singh S. Chemotherapy-Induced Peripheral Neuropathy – A Review. *J Evol Med Dent Sci*. 2020 Oct 19;9:3147–51.