

# Educational Program on Granulocyte-Colony Stimulating Factors (G-CSFs): Side Effects & Pharmacologic Interventions

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## Background

- The most commonly reported side effect of G-CSFs is bone pain.<sup>1</sup>
- Approximately 25-38% of oncology patients receiving chemotherapy experience bone pain associated with the administration of G-CSFs as supportive therapy.<sup>1</sup>
- The exact mechanism related to the occurrence of bone pain is not well understood.<sup>1</sup>
- Currently, there are limited evidence-based recommendations with regard to pharmacologic interventions for preventing and treating G-CSF related bone pain.
- Oncology nurses must remain abreast of evidence-based recommendations regarding pharmacologic interventions for preventing and treating G-CSF associated bone pain.

## Research Question

Do nurses who participate in a structured educational program demonstrate greater knowledge regarding pharmacologic interventions for reducing the incidence of G-CSF related bone pain, in comparison with their pre-participation knowledge?

## Purpose

The goal of this evidenced-based educational program was:

- To provide clinical nursing staff with evidence-based recommendations about pharmacologic interventions used to prevent and treat G-CSF related bone pain in oncology patients undergoing chemotherapy
- To guide clinical practice at a National Cancer Institute-designated Comprehensive Cancer Center's Infusion Center with the latest guidelines and recommendations

## Methods

	Description
Design	Pre- and post-test design
Sample	Clinical oncology nurses (n = 20)
Setting	Infusion Center at H. Lee Moffitt Cancer Center, Tampa, FL
Instruments	<ul style="list-style-type: none"> <li>➤ Questionnaire derived from the literature with pre- and post-test (20-items)</li> <li>➤ Single educational session</li> </ul>
Data Management and Analysis	<ul style="list-style-type: none"> <li>➤ Dichotomous data entered into an Excel database followed by item analysis</li> <li>➤ Percentage of correct scores for pre- and post-tests were calculated</li> <li>➤ Evaluated areas of improvement and areas in need of additional education</li> </ul>

## Results

Pre-test & Post-test Results	
Mean percentage score for pre-test	75%
Mean percentage score for post-test	94.5%
Overall average score improvement: <b>19.5%</b>	

Top 4 Questions Clinical Nursing Staff Struggled With The Most	Pre-test		Post-test		% Change
	n	%	n	%	
How many days after the administration of G-CSFs are patients most likely to experience bone pain?	11	55	17	85	30
There is strong evidence supporting that loratadine is effective in preventing or treating G-CSF related bone pain. T/F	5	25	16	80	55
There is strong evidence supporting that naproxen is effective in preventing or treating G-CSF related bone pain. T/F	11	55	17	85	30
How many days total should loratadine be administered for?	7	35	20	100	65

## Conclusions

Clinical nursing staff:

- Gained significant knowledge for making recommendations to oncology patients at risk of experiencing G-CSF related bone pain
- Were able to identify the most beneficial pharmacologic interventions associated with G-CSF related bone pain

Limitations:

- Small sample size
- Single educational session
- Nursing staff challenges to participate due to direct patient care

## Implications For Practice

- Nurses' awareness about evidence-based pharmacologic interventions is essential for the management of G-CSF related bone pain in oncology patients.
- The re-assessment of nurses' knowledge about the management of G-CSF related bone pain, and the development of a standardized policy and/or educational tool may be considered for future projects.

## References

1. Lambertini, M., Del Mastro, L., Bellodi, A., & Pronzato, P. (2014). The five "Ws" for bone pain due to administration of granulocyte-colony stimulating factors (G-CSF). *Critical Reviews in Oncology/Hematology*, 89, 112- 128. <http://dx.doi.org/10.1016/j.critrevonc.2013.08.006>

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