Granulocyte Macrophage Colony-Stimulating Factor: Current Practice and Novel Approaches

Felicia Browning Grape, RN, OCN®
Patricia C. Buchsel, RN, MSN, FAAN, Annette Forgey, RN, BSN, OCN®, and Sharon S. Hamann, RN, BSN, OCN®

Endogenous colony-stimulating factors (CSFs) are a class of glycoproteins that act on hematopoietic cells by binding to specific cell surface receptors to stimulate proliferation, differentiation, commitment, and on-cell function activity (Deresinski & Kempeter, 1998). Until recently, CSFs have been found only in humans, but development of recombinant DNA techniques have allowed these agents to be mass produced and studied in a variety of applications. Two major endogenous recombinant myeloid CSFs currently are being manufactured. Granulocyte macrophage CSF (GM-CSF) (sargramostim, Leukine®, Immunex Corporation, Seattle, WA) has broad activity in the proliferation and differentiation of myeloid lineage progenitor cells, whereas granulocyte CSF (filgrastim, Neupogen®, Amgen, Inc., Thousand Oaks, CA) acts selectively on cells of the granulocyte lineage. Clinical trials suggest that GM-CSF has clinical benefits beyond enhancing neutrophil recovery, including shortening the duration of mucositis and diarrhea, stimulating dendritic cells, preventing infection, acting as an adjuvant vaccine agent, and facilitating antitumor activity.

Clinical applications of GM-CSF have expanded enormously since it was first introduced in the early 1990s for acceleration of myeloid engraftment in patients with neutropenia. Current studies suggest that GM-CSF decreases the course of mucositis, stimulates dendritic cells, prevents infection, acts as a vaccine adjuvant, and facilitates immunologic tumor control. The purpose of this article is to discuss current and future applications of yeast-derived GM-CSF and nursing practice issues in the administration of this agent.

Endogenous myeloid colony-stimulating factors (CSFs) have demonstrated the ability to enhance the clinical management of immunosuppressed patients with cancer. These agents are associated with significant decreases in chemotherapy-associated infections, antibiotic use, length of hospital stays, and mortality. Two major endogenous recombinant myeloid CSFs currently are being manufactured. Granulocyte macrophage CSF (GM-CSF) (sargramostim, Leukine®, Immunex Corporation, Seattle, WA) has broad activity in the proliferation and differentiation of myeloid lineage progenitor cells, whereas granulocyte CSF (filgrastim, Neupogen®, Amgen, Inc., Thousand Oaks, CA) acts selectively on cells of the granulocyte lineage. Clinical trials suggest that GM-CSF has clinical benefits beyond enhancing neutrophil recovery, including shortening the duration of mucositis and diarrhea, stimulating dendritic cells, preventing infection, acting as an adjuvant vaccine agent, and facilitating antitumor activity.

Granulocyte Macrophage Colony-Stimulating Factor: Current Practice and Novel Approaches

Felicia Browning Grape, RN, OCN®
Patricia C. Buchsel, RN, MSN, FAAN, Annette Forgey, RN, BSN, OCN®, and Sharon S. Hamann, RN, BSN, OCN®

Endogenous myeloid colony-stimulating factors (CSFs) have demonstrated the ability to enhance the clinical management of immunosuppressed patients with cancer. These agents are associated with significant decreases in chemotherapy-associated infections, antibiotic use, length of hospital stays, and mortality. Two major endogenous recombinant myeloid CSFs currently are being manufactured. Granulocyte macrophage CSF (GM-CSF) (sargramostim, Leukine®, Immunex Corporation, Seattle, WA) has broad activity in the proliferation and differentiation of myeloid lineage progenitor cells, whereas granulocyte CSF (filgrastim, Neupogen®, Amgen, Inc., Thousand Oaks, CA) acts selectively on cells of the granulocyte lineage. Clinical trials suggest that GM-CSF has clinical benefits beyond enhancing neutrophil recovery, including shortening the duration of mucositis and diarrhea, stimulating dendritic cells, preventing infection, acting as an adjuvant vaccine agent, and facilitating antitumor activity.

Clinical applications of GM-CSF have expanded enormously since it was first introduced in the early 1990s for acceleration of myeloid engraftment in patients with neutropenia. Current studies suggest that GM-CSF decreases the course of mucositis, stimulates dendritic cells, prevents infection, acts as a vaccine adjuvant, and facilitates immunologic tumor control. The purpose of this article is to discuss current and future applications of yeast-derived GM-CSF and nursing practice issues in the administration of this agent.

Endogenous myeloid colony-stimulating factors (CSFs) have demonstrated the ability to enhance the clinical management of immunosuppressed patients with cancer. These agents are associated with significant decreases in chemotherapy-associated infections, antibiotic use, length of hospital stays, and mortality. Two major endogenous recombinant myeloid CSFs currently are being manufactured. Granulocyte macrophage CSF (GM-CSF) (sargramostim, Leukine®, Immunex Corporation, Seattle, WA) has broad activity in the proliferation and differentiation of myeloid lineage progenitor cells, whereas granulocyte CSF (filgrastim, Neupogen®, Amgen, Inc., Thousand Oaks, CA) acts selectively on cells of the granulocyte lineage. Clinical trials suggest that GM-CSF has clinical benefits beyond enhancing neutrophil recovery, including shortening the duration of mucositis and diarrhea, stimulating dendritic cells, preventing infection, acting as an adjuvant vaccine agent, and facilitating antitumor activity.

Clinical applications of GM-CSF have expanded enormously since it was first introduced in the early 1990s for acceleration of myeloid engraftment in patients with neutropenia. Current studies suggest that GM-CSF decreases the course of mucositis, stimulates dendritic cells, prevents infection, acts as a vaccine adjuvant, and facilitates immunologic tumor control. The purpose of this article is to discuss current and future applications of yeast-derived GM-CSF and nursing practice issues in the administration of this agent.

Endogenous myeloid colony-stimulating factors (CSFs) have demonstrated the ability to enhance the clinical management of immunosuppressed patients with cancer. These agents are associated with significant decreases in chemotherapy-associated infections, antibiotic use, length of hospital stays, and mortality. Two major endogenous recombinant myeloid CSFs currently are being manufactured. Granulocyte macrophage CSF (GM-CSF) (sargramostim, Leukine®, Immunex Corporation, Seattle, WA) has broad activity in the proliferation and differentiation of myeloid lineage progenitor cells, whereas granulocyte CSF (filgrastim, Neupogen®, Amgen, Inc., Thousand Oaks, CA) acts selectively on cells of the granulocyte lineage. Clinical trials suggest that GM-CSF has clinical benefits beyond enhancing neutrophil recovery, including shortening the duration of mucositis and diarrhea, stimulating dendritic cells, preventing infection, acting as an adjuvant vaccine agent, and facilitating antitumor activity.

Clinical applications of GM-CSF have expanded enormously since it was first introduced in the early 1990s for acceleration of myeloid engraftment in patients with neutropenia. Current studies suggest that GM-CSF decreases the course of mucositis, stimulates dendritic cells, prevents infection, acts as a vaccine adjuvant, and facilitates immunologic tumor control. The purpose of this article is to discuss current and future applications of yeast-derived GM-CSF and nursing practice issues in the administration of this agent.

Endogenous myeloid colony-stimulating factors (CSFs) have demonstrated the ability to enhance the clinical management of immunosuppressed patients with cancer. These agents are associated with significant decreases in chemotherapy-associated infections, antibiotic use, length of hospital stays, and mortality. Two major endogenous recombinant myeloid CSFs currently are being manufactured. Granulocyte macrophage CSF (GM-CSF) (sargramostim, Leukine®, Immunex Corporation, Seattle, WA) has broad activity in the proliferation and differentiation of myeloid lineage progenitor cells, whereas granulocyte CSF (filgrastim, Neupogen®, Amgen, Inc., Thousand Oaks, CA) acts selectively on cells of the granulocyte lineage. Clinical trials suggest that GM-CSF has clinical benefits beyond enhancing neutrophil recovery, including shortening the duration of mucositis and diarrhea, stimulating dendritic cells, preventing infection, acting as an adjuvant vaccine agent, and facilitating antitumor activity.

Clinical applications of GM-CSF have expanded enormously since it was first introduced in the early 1990s for acceleration of myeloid engraftment in patients with neutropenia. Current studies suggest that GM-CSF decreases the course of mucositis, stimulates dendritic cells, prevents infection, acts as a vaccine adjuvant, and facilitates immunologic tumor control. The purpose of this article is to discuss current and future applications of yeast-derived GM-CSF and nursing practice issues in the administration of this agent.

Endogenous myeloid colony-stimulating factors (CSFs) have demonstrated the ability to enhance the clinical management of immunosuppressed patients with cancer. These agents are associated with significant decreases in chemotherapy-associated infections, antibiotic use, length of hospital stays, and mortality. Two major endogenous recombinant myeloid CSFs currently are being manufactured. Granulocyte macrophage CSF (GM-CSF) (sargramostim, Leukine®, Immunex Corporation, Seattle, WA) has broad activity in the proliferation and differentiation of myeloid lineage progenitor cells, whereas granulocyte CSF (filgrastim, Neupogen®, Amgen, Inc., Thousand Oaks, CA) acts selectively on cells of the granulocyte lineage. Clinical trials suggest that GM-CSF has clinical benefits beyond enhancing neutrophil recovery, including shortening the duration of mucositis and diarrhea, stimulating dendritic cells, preventing infection, acting as an adjuvant vaccine agent, and facilitating antitumor activity.

Clinical applications of GM-CSF have expanded enormously since it was first introduced in the early 1990s for acceleration of myeloid engraftment in patients with neutropenia. Current studies suggest that GM-CSF decreases the course of mucositis, stimulates dendritic cells, prevents infection, acts as a vaccine adjuvant, and facilitates immunologic tumor control. The purpose of this article is to discuss current and future applications of yeast-derived GM-CSF and nursing practice issues in the administration of this agent.

Endogenous myeloid colony-stimulating factors (CSFs) have demonstrated the ability to enhance the clinical management of immunosuppressed patients with cancer. These agents are associated with significant decreases in chemotherapy-associated infections, antibiotic use, length of hospital stays, and mortality. Two major endogenous recombinant myeloid CSFs currently are being manufactured. Granulocyte macrophage CSF (GM-CSF) (sargramostim, Leukine®, Immunex Corporation, Seattle, WA) has broad activity in the proliferation and differentiation of myeloid lineage progenitor cells, whereas granulocyte CSF (filgrastim, Neupogen®, Amgen, Inc., Thousand Oaks, CA) acts selectively on cells of the granulocyte lineage. Clinical trials suggest that GM-CSF has clinical benefits beyond enhancing neutrophil recovery, including shortening the duration of mucositis and diarrhea, stimulating dendritic cells, preventing infection, acting as an adjuvant vaccine agent, and facilitating antitumor activity.

Clinical applications of GM-CSF have expanded enormously since it was first introduced in the early 1990s for acceleration of myeloid engraftment in patients with neutropenia. Current studies suggest that GM-CSF decreases the course of mucositis, stimulates dendritic cells, prevents infection, acts as a vaccine adjuvant, and facilitates immunologic tumor control. The purpose of this article is to discuss current and future applications of yeast-derived GM-CSF and nursing practice issues in the administration of this agent.