Dermatologic Assessment From a Distance: The Use of Teledermatology in an Outpatient Chemotherapy Infusion Center

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Treatment-related dermatologic toxicities are common for patients with cancer. Rashes associated with dermatologic toxicities are best treated by a physician who specializes in dermatologic conditions resulting from cancer treatment, but scheduling and travel may present challenges for patients. This article describes a pilot project in which nurses used telemedicine technology to facilitate patient visits with an off-site dermatologist.

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fter being diagnosed with metastatic colon cancer, C.G., a 56-year-old woman, had a liver resection and was treated with hepatic arterial and systemic chemotherapy. She has received three cycles of maintenance therapy of irinotecan and cetuximab weekly and has tolerated the treatment fairly well. She visited her oncologist at the institution’s main campus on the first week of every cycle and received her infusions at the institution’s new innovative chemotherapy infusion center. The center is located six miles away from the main campus, but is much more convenient and closer to C.G.’s home.

C.G. presented to the infusion center with a new rash to her face, neck, and trunk during her prechemotherapy assessment. On physical assessment, the chemotherapy nurse discovered grade 2 papulopustular eruptions with erythema and pruritus on those sites. The oncologist was contacted to discuss findings and decided to withhold treatment for the day. The oncologist also ordered a consult with the dermatologist at the institution’s main campus. The chemotherapy nurse contacted the dermatologist’s office and facilitated the dermatology visit using telemedicine technology. The dermatologist assessed the rash via a high-resolution total body examination camera and collaborated with the infusion site nurse practitioner to order minocycline 100 mg twice daily and topical tazarotene to treat the rash. C.G. returned in one week and stated that the rash resolved; she continues maintenance therapy without incidence.

Background

Dermatologic toxicities related to cancer treatments, particularly the administration of chemotherapy and biotherapy agents, are common for patients with cancer. Drug categories such as tyrosine-kinase inhibitors and epidermal growth factor receptor inhibitors (EGFRIs) are known for causing acneform eruption; follicular acneform eruption; folliculitis; and papulopustular, acneform, macropapular, or maculopustular rash (Segaert & Van Cutsem, 2005). Although mild to moderate in severity, skin rash can have a significant negative effect on patients’ quality of life. In addition to dryness and itching that can be very uncomfortable, people often are self-conscious about the rash, which frequently appears in highly visible areas such as the face, neck, and chest (Oishi, 2008). Clindamycin gel and hydrocortisone cream usually are prescribed proactively to treat mild rashes.

Rash is believed to be the most common cutaneous adverse effect of EGFRIs, with almost 100% of patients reporting rashes in some trials (Segaert & Van Cutsem, 2005). EGFRIs include cetuximab, panitumumab, erlotinib, gefitinib, and lapatinib, which are used to treat a wide range of cancers. Those drugs are administered as single agents and in combination with other systemic chemotherapy.

Rash has been cited as a cause of treatment cessation or dose modification. Although mixed, most data support the correlation between rash and outcomes in patients treated with EGFRIs (Lacouture et al., 2011). An estimated 8%–17% of patients change or stop their treatment because of moderate or severe adverse cutaneous effects (Lacouture & Lai, 2006). Oncology nurses caring for patients experiencing dermatologic toxicities must properly assess and manage those toxicities. In addition, dermatologists must be able to properly diagnose those side effects and differentiate them from other skin disorders (Agero et al., 2006).

Telemedicine Pilot

Telemedicine is the use of medical information exchanged from one site to another via electronic communications to improve patients’ health status (American Telemedicine Association, 2011).
Telemedicine services are provided in a variety of ways to offer patient consultation, medical education, remote patient monitoring, specialist referral service, and consumer medical and health information. The pilot discussed in this article is an example of telemedicine being used for patient consultations. Patient consultation services use telecommunication to share medical data between a patient and a health professional for use in rendering a diagnosis and treatment plan. The data may include audio and still or live images and can originate from a remote clinic to a physician’s office using a direct transmission link or communication over the Internet (American Telemedicine Association, 2011).

By using telemedicine technology, a pilot for patients with cancer was implemented at a new ambulatory off-site chemotherapy infusion center with a dermatologist at the main campus. In the metropolitan area of New York, NY, patients often prefer to have treatment at the off-site center because the six-mile commute can take about 35 minutes by car and almost an hour if using public transportation. In addition, the cost of commuting and parking in New York can be exorbitant. Given patient preference to be seen at the satellite clinic, the current pilot was implemented to determine whether telemedicine is an effective mode for conducting a comprehensive skin assessment and to evaluate the use of teledermatology on patient and clinician satisfaction.

The institution’s information systems department designed a wireless telemedicine cart, which included a high-resolution total body examination camera equipped with audio capability to be used at the infusion center. A designated examination room at the clinic and the dermatologist’s administrative office both were equipped with a desktop Web camera that connected to the telemedicine cart. The infusion nursing staff and the dermatologist were educated on use of the telemedicine equipment and process (see Figure 1).

Eligible patients were defined as those who presented with a dermatologic condition resulting from chemotherapy or biotherapy that was discovered during a prechemotherapy nursing assessment. The dermatologist was contacted in real-time by the nursing staff, and the team

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**FIGURE 1. Teledermatology Workflow**

MD—doctor of medicine; NP—nurse practitioner
conducted dermatologic assessments using the audio and video telemedicine technology (see Figure 2). During the assessment, the dermatologist was able to control the camera to zoom in or out and pan left and right to view the affected area. The nurse was at the patient’s chair side and supported the visit by assisting with the total body examination camera when needed. The nurse also answered questions and reinforced any information the dermatologist relayed. The nurse played an integral role in educating patients on the plan of care for proper medication administration and application. On completion of the visit, patients, nursing staff, and the dermatologist took surveys to document satisfaction with the process. After the assessment, the dermatologist also collaborated with the medical oncologist to manage, treat, and make decisions regarding treatment continuation or adjustments accordingly.

Evaluation

Nine patients and six nurses participated in the telemedicine pilot. As the pilot progressed, a modification was made to expand the patient eligibility criteria, as no patients with rashes secondary to chemotherapy or biotherapy presented to the infusion center. Therefore, the dermatologist sent his regularly scheduled follow-up patients to the infusion site to test the telemedicine technology. The site was offered to patients based on where they lived in proximity to the center and their willingness to participate in the pilot.

Overall, all patients and clinicians were very satisfied with the use of the telemedicine technology. Among eight patients who responded to a feedback survey, six agreed that telemedicine made it easier to get medical care and all agreed that they would not have received better care if they had been seen in the dermatologist’s office. Most feedback from the nine patients was positive regarding the quality of sound and picture or video, with eight rating sound and seven rating video as excellent or very good. Of the six nurses who provided feedback, four were able to manage patients’ symptoms using telemedicine, three felt that they were able to communicate clearly with the dermatologist, and five felt that telemedicine improved the care the patients received.

In this pilot, implementation of teledermatology improved patient care and access, as well as strengthened clinician collaboration. The pilot also improved the patient experience for participants, as indicated by comments on their evaluation forms such as “Today’s visit was convenient, private, and I was able to see the doctor as if it was in his office in [Manhattan]” and “The visit was accurate and informative without waiting for the doctor.”

Conclusion

Oncology nurses play an integral role in assessing and managing the dermatologic issues that patients experience, thus increasing patient quality of life and satisfaction. The use of teledermatology in the current pilot fostered timely and quality assessment and management of dermatologic toxicity. The present and future use of telemedicine is valuable as it increases patients’ access to subspecialized providers during cancer care.

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References


