

# Nursing-Specific Management on Toxic Epidermal Necrolysis (Ten) In Cml Patient: Case Report

## Abstract

Toxic epidermal necrolysis (TEN) is a rare, life threatening, severe mucocutaneous adverse reaction characterised by extensive epidermal detachment, erosion of mucosae and severe constitutional symptoms [1]. Worldwide, the incidence of TEN is estimated to be between 1-2 per million people per year and in India 0.4 to 1.2 cases per million people per year [2-5]. The mortality rate of TEN is about 20 to 60 percent [6,7]. Severe sepsis is an important complication and main cause of death in TEN. The prognosis is improved by supportive care especially with specialist nurses to achieve favourable outcomes for patients [8].

Nursing care in TEN is paramount, as management focuses on wound healing, infection prevention, hydration, nutrition, psychological support and the prevention of long-term complications. Nurses, skilled in infection prevention and barrier nursing are in an ideal position to manage patients with TEN to achieve good outcome despite their challenging disease course [9].

## Case Presentation

A 53-year-old Indian woman who was on cancer chemotherapy for chronic myeloid leukemia (CML) was admitted to our hospital with a history of sudden onset itchy skin rashes on the body along with fever chills. She had received Allopurionol, Hydroxyurea and Dasatinib in the past 3-4weeks. Skin was erythematous, fragile and more than 50% body surface area was involved. Mucosal involvement was not present. Dermatologist opinion was sought and was suspected to have cutaneous adverse drug reaction and all her ongoing medications were temporarily withheld till recovery. She was managed conservatively under the guidance of a hematologist, dermatologist and infectious disease specialist. Treatment consisted of IV fluids, systemic corticosteroids, antibiotics, antihistamines. Patient recovered completely in 2 weeks of hospitalization and was discharged. Her chemotherapy was resumed with alternative medication Imatinib. She once again developed itching and rashes within 2 weeks of starting medication, however, mild-moderate in severity. Her symptoms were managed at home with oral corticosteroids along with ongoing chemotherapy. The rashes continued to progress in severity in spite of corticosteroids and hence Imatinib was stopped. She developed blisters and exfoliation of skin and was diagnosed to have toxic epidermal necrolysis (TEN) involving 70-80% body surface area and oral mucosal erosions. She was hospitalized and managed under close supervision by specialist doctors and skilled nurses (Figures 1-3). She was treated with IV fluids, corticosteroids, cyclosporine, antibiotics, antihistamines, daily dressings with normal saline, liquid paraffin and mupirocin, oral care, eye care, cannula care, high protein diet and strict infection control measures. Vital parameters, blood counts and microbial cultures were assessed closely and regularly. Patient's condition improved and skin



## Journal of Clinical & Investigative Dermatology

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**Submission:** 28 February, 2022

**Accepted:** 05 April, 2022

**Published:** 09 April, 2022

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Figure 1:



Figure 2:



Figure 3:

lesions were completely healed in about 3 weeks without scarring. No complications in the form of secondary infections or systemic morbidities were observed during her hospital stay.

In this case, the commonest nursing care interventions were aggressive skin care, mucosal and eye care, infection surveillance and prevention practices and general patient monitoring for complications. Skin and wound care were most challenging part of nursing care due to severe erosion or exfoliation. Nurses do not use any specific guidelines of care but consider their role as a key in quality outcomes for this patient.

## Discussion

Patients with TEN presents with nuanced symptoms and have complex nursing care needs. In the management of patients with TEN, admission to a specialized burn centre or intensive care setting may be considered. However, in our setting, this patient is managed in haematology ward by nurses who are highly skilled in barrier nursing and infection prevention with the guidance of expert haematologists, dermatologist and infectious disease specialist. The major nursing role in TEN is supportive, revolving around skin and wound care, infection prevention, comfort management, hydration and nutrition, psychosocial support, and the prevention of long-term complications [10-12]. **3.1. Focused nursing interventions executed for the patient**

**A. Continuous Monitoring:** Vital signs monitoring is an essential part of management as they show the first sign of a worsening systemic condition. We had monitored the parameters such as body temperature, pulse rate, blood pressure, respiratory rate and saturation rate every second hourly for the patient. Maintaining Intake output chart is also equally important in patient with TEN in order to prevent complications that arise from excessive fluid loss. Intake- Output charting was done for the patient every 6<sup>th</sup> hourly. We had examined mouth, eyes and genitalia (including perianal skin) looking for mucositis, blisters and erosions during each nursing shift as she was prone to infection. We had assessed patency of airway and examined respiratory system to exclude pneumonia/respiratory compromise.

**B. Maintenance of ambient room temperature:** Keeping the patient warm is a key nursing issue for the patients with TEN. Patients was nursed in a room with environmental temperature maintained at 30-32 degree Celsius which was ensured by keeping the air conditioning was switched off and was provided with adequate linen to ensure warmth. This has reduced caloric losses through the skin and the resultant shivering and stress. Heat loss has also limited by use of air-bed which had improved the comfort of the patient.

**C. Pain and comfort:** Pain management can be one of the most challenging aspects of caring for patient with TEN. We had assessed the pain levels using Wong-Baker Faces Rating Scale throughout her hospitalisation and administered analgesics as per physician's order. We had always performed our nursing tasks like skin care, bed changes during the peak effect of analgesics which had optimized her comfort and compliance in care. Patient room has provided with music, television and had permitted to keep idols of their favourite God near the bed side so as to reduce the stress and provide comfort. All efforts were made to provide the patient with the most comfortable environment possible.

**D. Nutritional considerations and fluid management:** As part of specific care, feeding and nutritional management is one of the themes in nursing roles in the care of TEN patients. We had ensured patient was on high protein diet and also included D protein powder 1 tea spoon in milk for three times daily. We had provided neutropenic soft, bland, nonacidic food for the patients since patient had mild mucositis. The patient was on continuous IV fluids, Inj. Normal saline@125ml/hr and strict I/O charting was maintained every 6<sup>th</sup> hourly.

**E. Skin care:** Daily head to toe skin assessment is vital for the patients with TEN as the skin is the most affected organ in this condition and skin exposure is a high risk for nosocomial infections, bleeding and other serious complications. At the beginning of each nursing shift, we had assessed for target lesions, particularly atypical targets, purpuric macules, blisters, and areas of epidermal detachment. We had used Normal saline to wash the skin two times daily which was meant to prevent infections and cleanse the erosions and wounds on the mucosal surfaces followed by local application of liquid paraffin oil in full body. Daily dressing to raw areas including biopsy site followed with paraffin dipped gauze wrapping was done gently using aseptic techniques. Prevention of further skin detachment was one of our nursing priorities. Hence, we had used air mattresses and provided maximal assistances during bed changes; toileting and continence care for the patient. Every two hourly position change was given to the patient. We have attached patient identification band to her clothing to minimize skin contact.

**F. Oral care and ophthalmic surveillance:** Oral hygiene had maintained with chlorhexidine mouth wash (1:1 dilution with drinking water) for gargling three times a day after food. We had ensured patient used extra soft nylon bristled toothbrush and did gentle brushing. Saline compression followed with paraffin ointment every 2 hours was done on lips to soften the lips crusts and reduce the pain. Daily assessment of mouth and surrounding areas was done. Encouraged oral intake of the patient with soft, bland nonacidic food which was micro waved. Ophthalmological consultation has taken into priority place as soon as possible to determine the frequency of surveillance. Symptomatic treatment aims to protect the cornea and to maintain hydration of the eye surface, to minimize subsequent problems; Supportive care is the mainstay of therapy. Local care had administered by the instillation of an eye lubricant named Optive eye drops, every 2<sup>nd</sup> hourly daily, helped in preventing irritation to the eyes.

**G. Infection prevention:** Infection prevention is very crucial in the management of these patients. Patient was admitted in a single room equipped with dedicated equipment such as thermometer, sphygmomanometer, pulse oximetry, cardiac monitor, and infusion pumps. Availability of Alcohol hand rub outside the room was ensured by the allocated staff nurse. Thorough environmental cleaning, particularly the removal of dust from horizontal surfaces was ensured on a daily basis. We had restricted the number of visitors and made diligent hand washing, screening for illness and masking as mandatory for visitors. Followed barrier nursing and sterile handling of patients, Ensured that the allocated staff nurse is infection-free. Regular hand hygiene with chlorhexidine hand rubs and hand washes were practiced by health-care workers and caregivers. Always use sterile gloves during aseptic or invasive procedures or contact

with sterile sites. Monitored for foci of sepsis in the body through daily assessment. We had avoided unnecessary insertion of urinary catheters and Ryle's tube. We had punctured and drained the skin blisters rather than deroofing blisters. Peripheral venous cannulas were handled minimally and left in place for a long duration and not replaced before 96 h unless there was evidence of phlebitis, local infection or malfunction. Activated sepsis protocols within 30 minutes of febrile episodes. Adhered strictly to neutropenic diet. We had limited the patient movement and made arrangements for portable diagnostic tests at bed side.

**H. Psychological considerations:** Providing emotional support is a vital part of supportive care. We had used Distress Thermometer scoring for this patient daily to assess her issues such as sleeping difficulty, anxiety, maintaining relationships and being physically intimate with her partner etc during hospital stay and addressed these issues to the psycho-oncologist and had arranged regular follow ups. Maintained good rapport with the patient and family and always made available to them.

**I. Informing the patient and the family:** On discharge from hospital, patient had received personalized information about the suspected or proven cause of the disease, the risk of sequelae, the need for follow-up and the possibilities for subsequent drug treatment. She was instructed to avoid long time sun exposure which may worsen pigmentation disturbances for several months or years and advised to continue liquid paraffin to protect the skin.

## Conclusion

Toxic Epidermal Necrolysis (TEN) is most often the result of an adverse drug reaction whose manifestation affect the skin and mucous membranes and outcomes may be life threatening and fatal. Supportive management has been proven to be the mainstay with well executed nursing care resulting in quality clinical outcomes. Supportive care is initiated earlier in the disease; mortality in TEN will continue to decrease. Nurses are in a good position to help patients avoid the long-term complications of this disease, promote comfort, and improve survival by following these recommendations for barrier nursing, daily care, surveillance, preventing infections and the promotion of wound healing and recovery.

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