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Application of Swcr Guidelines for Dressing in Wound Management

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Abstract

With the aim to formulate simple and practical guidelines for choosing dressing material, The objectives being to develop an Acronym so that these guidelines should be easy to remember, to develop Scientific & Evidence based guidelines, develop guidelines which should be applicable to all kinds of wounds irrespective of site and duration (acute/chronic), and to develop guidelines for selection of safe, effective, appropriate and economic dressing.

Keywords: Burnt wound; Skin grafting; Bates jensen wound assessment tool.

INTRODUCTION

A dressing is a clean or sterile material that is applied directly to wounded or diseased tissue to absorb secretions, prevent infection, fluid loss, trauma, and transplanted tissue (e.g., skin graft), administer/ retain medications to promote healing/pain relief, keep the environment clean, apply pressure to avoid edema, or stop bleeding. Many innovative surgical dressings, including vapor permeable adhesive films, hydrogels, hydrocolloids, alginates, and synthetic foam dressings, were introduced in 1990. New product categories were also introduced, including anti-adhesive silicone meshes, tissue adhesives, barrier films, and silver or collagen-containing dressings. Finally, engineered skin substitutes and combination products were produced. Various negative pressure devices are now available for efficient and successful wound treatment using negative pressure (NPWT).

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A Dressing Guideline is Required for following Reasons

- To choose a particular dressing material based on the wound characteristics and patient factors (Scientific and evidence based; to avoid bias in selection).
- To prevent 'Commercial Misuse' of dressing products a Guideline is required.
- To 'Educate & Guide' Nurses, Dressers & Paramedical Staff.
- The Society for Wound Care and Research (SWCR), founded in 2006, is a unique blend of academic, clinical, research, and social service whose mission is to promote

better wound care and research, provide community health care related to trauma/ wounds by publishing journals, newspaper articles, books/handbills, maintaining a web site, establishing scholarships, foundations, and lectureships, and providing grants and other benefactions either in India or abroad. 'SWCR General Guidelines for Wound Management' (Wound Care Con 2013, JIPMER, Pondicherry) was the society's inaugural guideline.[1] 'SWCR Criteria for Dressings' is the next in the SWCR guideline series, with the goal of formulating simple and practical guidelines for choosing dressing material. The goals are to create an acronym to make these guidelines easier to remember, to create scientific and evidence-based guidelines, to create guidelines that are applicable to all types of wounds regardless of site or duration (acute/chronic), and to create guidelines for selecting safe, effective, appropriate, and cost-effective dressings. (Fig. 1)

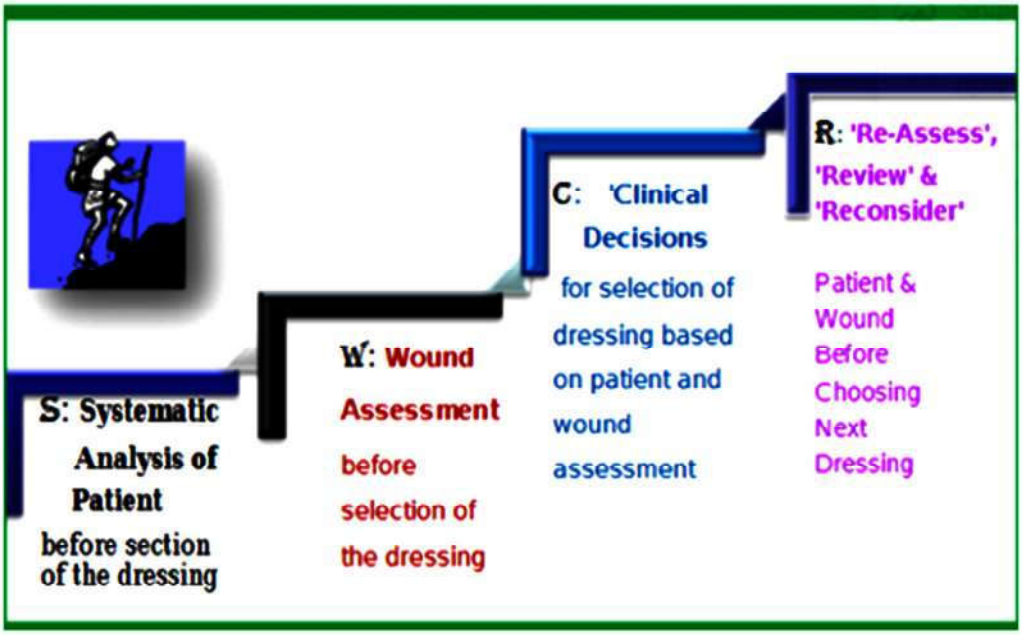


Fig. 1: SWCR Acronym.

Other wound assessment tools TOWA (Triangle of Wound Assessment wound bed, wound edge, peri-wound skin)[2] and TIME Concept (T-Tissue, I-Inflammation & Infection, M-Moisture, E-Edge) of assessing wound bed[3, 4].

MATERIALS AND METHODS

The study was carried out in burns ward in JIPMER, Pondicherry tertiary care hospital in South India, after receiving approval from department ethical council.

A 35 yr old female alleged history of accidental burns from kerosene stove around on 13/03/2022 at her residence in Kalasthambadi. She was burnt for less than 10 seconds. She was initially treated at Thiruvannamalai GH and referred to JIPMER for further management. Obstetric P3L3, last child birth 3 months back and married for 6 yrs.

On physical examination she was conscious, oriented, unable to open her eyes, systemic examination was within the normal limit. Locally, second degree superficial and deep burns involving the face, chest, both breast and proximal arm which is 15% total burnt surface area with inhalational injury (Fig. 3). After her initial resuscitation, she underwent serial wound debridement, scaffold application, tangential excision, skin grafting, low level laser therapy (Fig. 4), Autologous platelet rich plasma and hydrojet debridement and full thickness skin grafting to both breasts. Wound assessed using photographs and described results of each approach of wound dressing using bates jensen wound assessment tool.

The selection of a suitable dressing begins with a wound assessment. BJWAT was used to examine the wound (Bates Jansen Wound Assessment Tool-A total of 13 item score).[5] Whenever the dressing is changed, the wound is properly appraised,

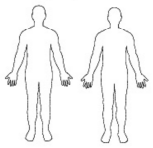
and photographs are taken that are signed and dated. (Fig. 5) For BWAT wound characteristics, a selection of digitalized wound pictures was used. For future publishing, the images needed to be of high resolution and good quality, as well as valid and reflective of the targeted attribute. To add, alter, or exclude these images, a face-to-face validation exercise was undertaken. Additional images were collected for the remaining attributes and to replace those that had not been validated.

BATES-JENSEN WOUND ASSESSMENT TOOL NAME

Complete the rating sheet to assess wound status. Evaluate each item by picking the response that best describes the wound and entering the score in the item score column for the appropriate date.

Location: Anatomic site. Circle, identify right **(R)** or left **(L)** and use **"X"** to mark site on body diagrams:

___ Sacrum & coccyx ___ Lateral ankle
___ Trochanter ___ Medial ankle
___ Ischial tuberosity ___ Heel Other Site



Shape: Overall wound pattern; assess by observing perimeter and depth.

Circle and date appropriate description:

___ Irregular ___ Linear or elongated
___ Round/oval ___ Bowl/boat
___ Square/rectangle ___ Butterfly Other Shape

Item	Assessment	Date Score	Date Score	Date Score
1. Size	1 = Length x width <4 sq cm 2 = Length x width 4-<16 sq cm 3 = Length x width 16.1-<36 sq cm 4 = Length x width 36.1-<80 sq cm 5 = Length x width >80 sq cm			
2. Depth	1 = Non-blanchable erythema on intact skin 2 = Partial thickness skin loss involving epidermis &/or dermis 3 = Full thickness skin loss involving damage or necrosis of subcutaneous tissue; may extend down to but not through underlying fascia; &/or mixed partial & full thickness &/or tissue layers obscured by granulation tissue 4 = Obscured by necrosis 5 = Full thickness skin loss with extensive destruction, tissue necrosis or damage to muscle, bone or supporting structures			
3. Edges	1 = Indistinct, diffuse, none clearly visible 2 = Distinct, outline clearly visible, attached, even with wound base 3 = Well-defined, not attached to wound base 4 = Well-defined, not attached to base, rolled under, thickened 5 = Well-defined, fibrotic, scarred or hyperkeratotic			
4. Undermining	1 = None present 2 =Undermining < 2 cm in any area 3 = Undermining 2-4 cm involving < 50% wound margins 4 = Undermining 2-4 cm involving > 50% wound margins 5 = Undermining > 4 cm or Tunneling in any area			
5. Necrotic Tissue Type	1 = None visible 2 = White/grey non-viable tissue &/or non-adherent yellow slough 3 = Loosely adherent yellow slough 4 = Adherent, soft, black eschar 5 = Firmly adherent, hard, black eschar			
6. Necrotic Tissue Amount	1 = None visible 2 = < 25% of wound bed covered 3 = 25% to 50% of wound covered 4 = > 50% and < 75% of wound covered 5 = 75% to 100% of wound covered			
7. Exudate Type	1 = None 2 = Bloody 3 = Serosanguineous: thin, watery, pale red/pink 4 = Serous: thin, watery, clear 5 = Purulent: thin or thick, opaque, tan/yellow, with or without odor			
8. Exudate Amount	1 = None, dry wound 2 = Scant, wound moist but no observable exudate 3 = Small 4 = Moderate 5 = Large			
9. Skin Color Surrounding Wound	1 = Pink or normal for ethnic group 2 = Bright red &/or blanches to touch 3 = White or grey pallor or hypopigmented 4 = Dark red or purple &/or non-blanchable 5 = Black or hyperpigmented			
10. Peripheral Tissue Edema	1 = No swelling or edema 2 = Non-pitting edema extends <4 cm around wound 3 = Non-pitting edema extends ≥4 cm around wound 4 = Pitting edema extends < 4 cm around wound 5 = Crepitus and/or pitting edema extends ≥4 cm around wound			
11. Peripheral Tissue Induration	1 = None present 2 = Induration, < 2 cm around wound 3 = Induration 2-4 cm extending < 50% around wound 4 = Induration 2-4 cm extending ≥ 50% around wound 5 = Induration > 4 cm in any area around wound			
12. Granulation Tissue	1 = Skin intact or partial thickness wound 2 = Bright, beefy red; 75% to 100% of wound filled &/or tissue overgrowth 3 = Bright, beefy red; < 75% & > 25% of wound filled 4 = Pink, &/or dull, dusky red &/or fills ≤ 25% of wound 5 = No granulation tissue present			
13. Epithelialization	1 = 100% wound covered, surface intact 2 = 75% to <100% wound covered &/or epithelial tissue extends >0.5cm into wound bed 3 = 50% to <75% wound covered &/or epithelial tissue extends to <0.5cm into wound bed 4 = 25% to < 50% wound covered 5 = < 25% wound covered			
	TOTAL SCORE			
	SIGNATURE			

WOUND STATUS CONTINUUM

1 5 10 13 15 20 25 30 35 40 45 50 55 60

Tissue Health — **Wound Regeneration** — **Wound Degeneration**

Fig. 2: Bates Jansen Wound Assessment Tool.

Fig. 3: Systematic Analysis of the patient at the time of admission.

Fig. 4: Wound bed preparation after Wound assessment.

Fig. 5: Skin Grafting after wound bed preparation.

RESULTS

After serial application of dressings according to SWCR guidelines and assessment of wound using photographs and scoring according to Bates Jensen wound assessment tool done over more than 1 month it has been noticed that there was significant in wound healing. (Fig. 6)

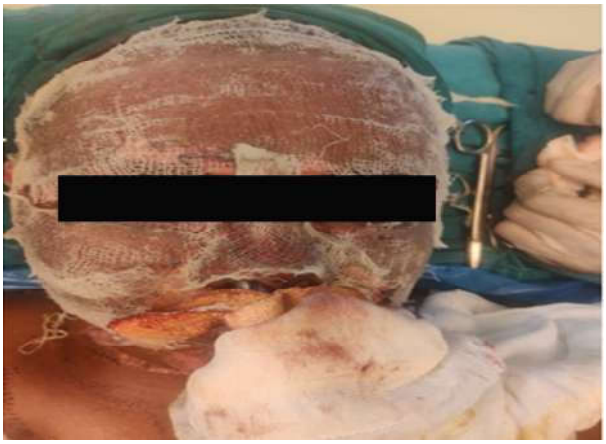


Fig. 6: Clinical decision about wound dressing after wound assessment..

Initial assessment of wound by BJWAT score was 26 and after wound management, the score was 16. (Fig. 7)

Fig. 7: Reassess before choosing next dressing.

DISCUSSION

'SWCR Guidelines for Dressings' (Table 1) provides systematic approach for choosing a dressing, easy to remember because of acronym and applicable to all kinds of wounds irrespective of site or duration. (Table 2)

Table 1: Recommended Dressing for Common Wound Problem.

Wound Type	Recommended Dressing	Dressing Change
Dry Necrotic	Moisture Retention Interactive Dressing e.g. Polyarcrylate, Hydrogel	3-4 Days
Wound with Exposed Bone, Tendon	Cover with Tulle and Moist Dressing; Moist Retaining Interactive Dressing. (Hydrogel, Tender Wet dressing)	2 Days
Burn-Minor Burns	Non Adherent Antimicrobial Impregnated, Absorbent Biological Dressing.	4-5 Days Visval Review Leave Dressing on if Healing See
Burn-Major or Requiring Admission e.g Special Areas Burns	Non Adherent Antimicrobial Impregnated, Absorbent Biological Dressing Face and Perineum Exposed	Inpatient Review
Chronic Wounds	Hydrocolloid, Alginate, Foam NPWT	3-5 Days
Diabetic Wound	Antibiotic (Silver) Impregnated Absorbent If Required Along With Pressure Relief/Off Loading/Shoe Modifications NPWT If Admitted	2-3 Days

Venous Ulcers	Bioactive Bioengineered Dressing, Compression Dressing If Admitte-Along With limb Elevation and Bed Rest Or NPWT	2-3 Days
Post Operative Wounds	Dry Composite Dressing	2-3 Days

Granulation is Stunned Wound, Wound Closure in Chronic Wounds

Table 2: Dressing recommendations as per requirement of the wound that is to be achieved.

Goal to be achieved	Recommendations
To increase moisture level in the wound (dry wounds, for betteer cpithelialization, protection of exposed tendon and bone in wound etc.)	Hydrogel
To blance moisture in the wound (e.g. for promoting granulation)	Aliginates, Hydrogel Sheets, Polyacrylate egl, Foams, Hydrocolloids, Hydrofibers, Silicone Dressings, Composite Dressings.
To reduce moisture in the wound (exudations in wounds)	Depending on level of exudate absorbent do, alginates, foam and superabsorbent dressing (sec Table 3.)
To debride the woumd	Collagenase and Paipan For autolytic debridement in moist envioroment-hydrogel, hydrocolloid Limited Access dressing (LAD)- NPWT
To reduce odor in the wound	Charcoal with alginate
To reduce bacterial count	Super absorptive dressings that locks bacteria (bacteriostatic) Absorbent dressing with silver
To promote celll proliferation and growth of granulation in stunned wound, wound closure in chronic wounds	Growth factors, stem cells

CONCLUSION

Despite plethora of information available related to various dressings, a clear guideline has been suggested to choose dressing for complete wound healing in optimal time period with minimum complications.

Conflict of interest: None

Declarations: None

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