Skin failure: A two-faced concept

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While it is well accepted that the skin is an organ of the body, the fact that it can fail as many other organs do, is not well understood and considered. Some attempts have been made to define "skin failure" with two distinct and quite different meanings, which reflect, in a way, an "inside out" vs an "outside in" pathogenetic process.[1-5]

On one hand, the term has been used, mainly in the "wound care" area, to refer to regional or localized loss of substance, such as pressure ulcers, especially in critically ill patients.[6-10] Skin failure, in this meaning, is defined as "an event in which the skin and underlying tissue die due to hypo-perfusion that occurs in concomitance with failure of other organs," especially in the context of a Multi-Organ Dysfunction Syndrome (MODS), or as part of the dying process at the end of life (Skin Changes at Life's End, 'SCALE').[3] In addition, a more chronic skin failure is recognized as a feature of frailty in older adults or in people with impaired mobility. This chronic skin failure is characterised again by a loss of structural integrity of the skin and subsequent impaired wound healing. These skin changes have a multifactorial aetiology and could be accelerated by various comorbidities. They may have different level of severity and similarly to other organ failures may be staged, with clues for earlier recognition and adequate care.[8-11]

On the other hand, the term "skin failure" has been employed to refer to the loss of the barrier function of the skin and homeostatic derangement due to widespread cutaneous involvement by pathological processes, such as extensive burns, epidermal necrolysis, generalised pustular psoriasis, or exfoliative dermatitis by any causes.[2,12,13] The failure of the skin, in this context, leads to inability to maintain normal temperature control, inability to prevent transcutaneous loss of fluids and proteins, resulting in hydro-electrolytic imbalances and susceptibility to systemic infections.[1,2] This is, in our opinion, the proper use of the term "skin failure", which is an acute condition with systemic effects and needing interventions to restore a proper function. It is not less severe than other organ dysfunctions such as heart, lung, kidney or liver failure.

Acute skin failure constitutes a dermatological emergency that requires an intensive and multidisciplinary approach. Adequate knowledge of the pathophysiology of this condition and monitoring of the patients in specialized hospital units, can reduce the associated high morbidity and mortality.[12] As already proposed by Prof. René Touraine in 1976, the treatment of acute skin failure should take place in dermatological intensive care units.[2] When such facilities are not available, patients should be referred to a burn unit or specialized wards.

It is time to largely adopt a "skin failure concept" when confronted with extensive dermatological conditions, establishing methods to assess severity of such a condition, and developing validated therapeutic protocols.

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References

1. Irvine C. 'Skin failure': a real entity: discussion paper. J R Soc Med 1991; 84:412–3.
2. Inamadar AC, Palit A. Acute skin failure: concept, causes, consequences and care. Indian J Dermatol Venereol Leprol 2005;71:379–85.
3. Langemo DK, Brown G. Skin fails too: acute, chronic, and end-stage skin failure. Adv Skin Wound Care 2006; 19:206–11.
4. Steinberg KE. Skin Failure: A Practical Concept when Properly Applied. J Am Med Dir Assoc 2016;17:570.
5. Dalgleish L, Campbell J, Finlayson K, et al. Skin Failure: A Scoping Review. Adv Skin Wound Care. 2021 Jun 23 [Epub ahead of print].
6. Witkowski JA, Parish LC. The decubitus ulcer: skin failure and destructive behavior. Int J Dermatol 2000;39:894–6.
7. Kottner J, Sigaudo-Roussel D, Cuddigan J. From bed sores to skin failure: Linguistic and conceptual confusion in the field of skin and tissue integrity. Int J Nurs Stud 2019;92:58–9.
8. Levine JM. Unavoidable Pressure Injuries, Terminal Ulceration, and Skin Failure: In Search of a Unifying Classification System. Adv Skin Wound Care 2017;30:200–2.
9. Levine JM. Skin Failure: An Emerging Concept. J Am Med Dir Assoc 2016;17:666–9.
10. Dalgleish L, Campbell J, Finlayson K, Coyer F. Acute Skin Failure in the Critically Ill Adult Population: A Systematic Review. Adv Skin Wound Care 2020;33:76–83.
11. Ferris AE, Harding KG. Are chronic wounds a feature of frailty? Br J Gen Pract J R Coll Gen Pract 2020;70:256–7.
12. Roujeau JC. Toxic epidermal necrolysis (Lyell syndrome): more than "acute skin failure". Intensive Care Med 1992;18:4-5.
13. Dobson JS, Levell NJ. Erythroderma. Medicine UK 2017;45:417-21.