AZIENDA OSPEDALIERO - UNIVERSITARIA
Città della Salute e della Scienza di Torino

Poster number: 3PC-019

DEVELOPMENT OF A TOPICAL EMULSION FOR THE TREATMENT OF THIRD-DEGREE BURN PATIENTS CANDIDATES FOR SKIN GRAFT

E. CASTELLANA , S. FELLONI , M. SCALDAFERRI , R. VIGLIANTI , B. BUSSOLINO , F. CUZZI , C. CASALIS , D. RISSO , M.R. CHIAPPETTA , F. CATTEL .
CITY OF HEALTH AND SCIENCE, TURIN, ITALY.
Contact us: ecastellana@cittadellasalute.to.it

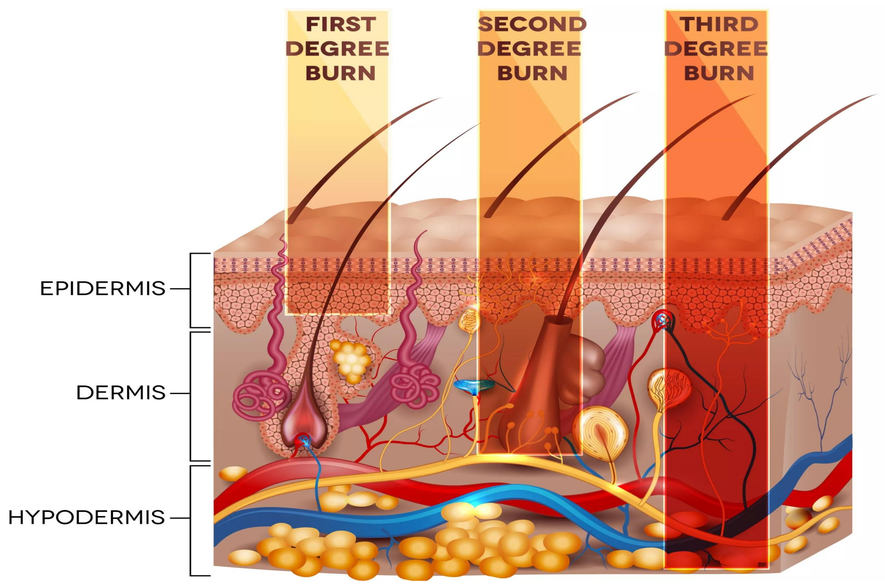
BACKGROUND AND IMPORTANCE

A third-degree burn (TDB) destroys the epidermis and dermis presenting a high risk of infection. These lesions are treated with skin grafts (SG) in the absence of infection.

AIM AND OBJECTIVES

The hospital pharmacist was asked to develop a non-irritating, antibacterial, easily spreadable and removable topical emulsion formula specific to prepare the burned tissue for SG.

The aim is to describe effectiveness and tolerance of topical magistral formula emulsion.



MATERIAL AND METHODS

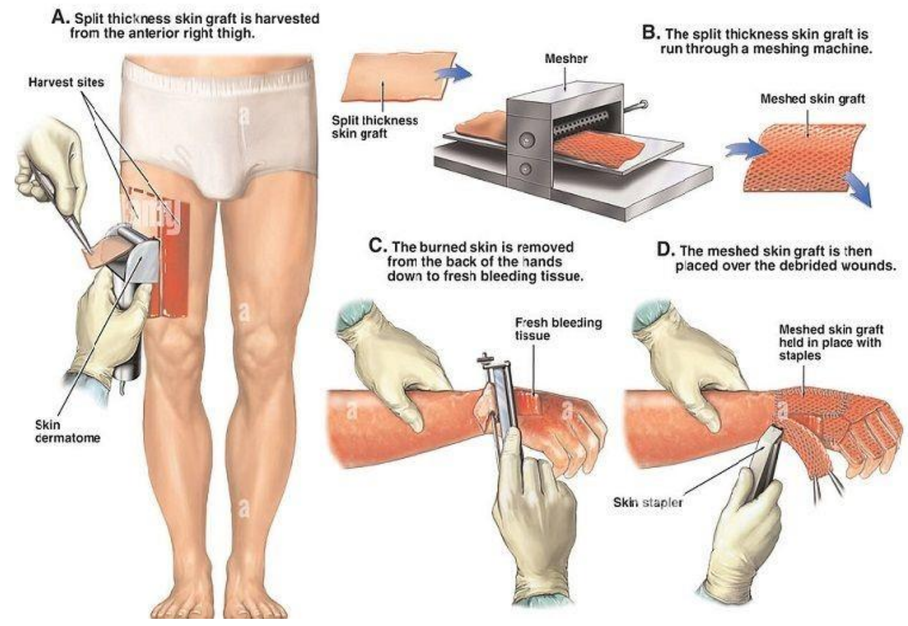
A scientific literature search was conducted.

Galenic development and validation of the formula were described in the monograph ‘Semi-solid preparations for cutaneous application of the Official Pharmacopoeia of the Italian Republic.

The efficacy of the formulation was evaluated by the physician.

A retrospective observational analysis was performed. Patients with TDB who are candidates for SG in 2022-2023 were evaluated.

The variables collected were: duration of treatment, dosage, clinical response and adverse effects.



RESULTS

The main components are:

C15–20-acid-PEG-8-ester-12%, hydrophilic-lipophilic balance 12, emulsifier, non toxic for skin enzymes, suitable for the most sensitive skin, and the most histophilic of known emulsifiers.

> Int J Burns Trauma. 2023 Oct 15;13(5):191-203. eCollection 2023.

Evaluation of silver sulfadiazine 1%-cerium nitrate 2.2% cream efficacy and safety in moderate to severe burn patients: a single-blind randomized clinical trial

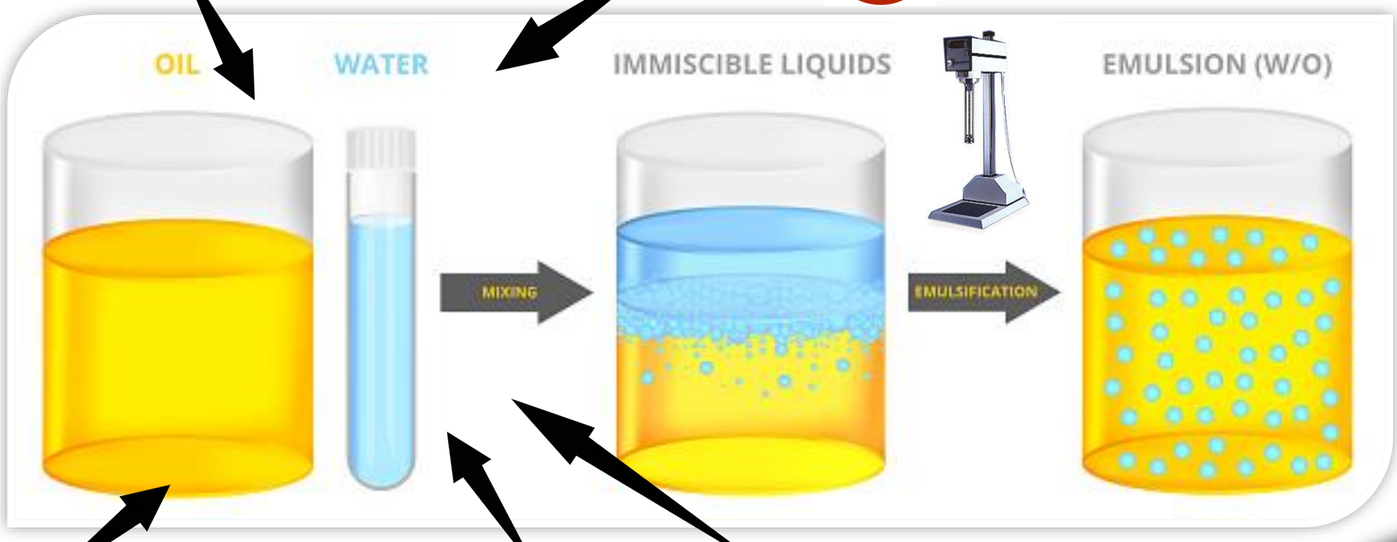
Emad Molaei [1], Hedyieh Karbasforooshan [2], Ali Ahmadabadi [3], Mohammadreza Abbaspour [4 5], Seyed Hasan Tavoosi [3], Majid Khadem-Rezaeian [6], Ali Molaei [7], Sepideh Elyasi [2]

Affiliations + expand

PMID: 38028560 PMCID: PMC10658154

Free PMC article

Cerium nitrate-2% combined with silver sulfadiazine-0,3% to provide broad antibacterial activity, forms a temporary barrier and promotes re-epithelialization.

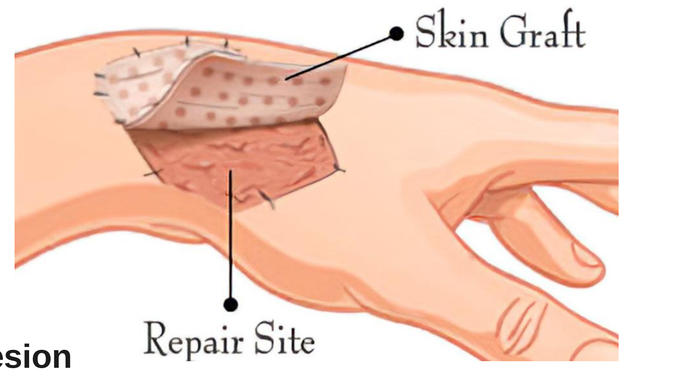


RESULTS

Silicone oil 0.3% improves the application and absorption of creams. The favorable environment, created by occlusion-hydration, the formation of hypertrophic scars is prevented.

Sebopessina-2%, active principle for sebaceous secretion problems because burned skin has blisters

Squalane-7%, a texturizer, creates a film that protects the skin by delaying the loss of transepidermal water and improves the spreadability of the product



A shelf life of 30 days has been established, based on the critical skin lesion
Odor, color and phase separation remained stable over the month.
Spreadability and emulsion removal were excellent.
15 patients were treated.
100% responded well to treatment after an average of 2 weeks and a dosing frequency of 3 times a day.
The physician confirmed good delimitation and absence of infections in the burnt areas that will receive the SG. No adverse reactions were reported.

CONCLUSION AND RELEVANCE

The galenic emulsion described is a good therapeutic solution for patients with TDB who are candidates for SG.

Conflict of interest: no potential conflict of interest to disclose.