Delayed use of polylactide-based copolymer (Suprathel®) for pediatric partial-thickness burns: An option for 'difficult-to decide' cases

Ayşe Ebru ABALI, Gökhan MORAY, Mehmet HABERAL;
Burn and Fire Disasters Institute, Baskent University, Ankara, Turkey

Many partial-thickness burns in children lead to confusion whether they are superficial or deep. Polylactide-based copolymer (Suprathel®) is a synthetic temporary skin substitute. It is promptly used for superficial dermal burns. But, surgical-debridement is required before using Suprathel® for deeper dermal burn wounds.

This study aimed to document the outcomes of delayed outpatient use of Suprathel® (following outpatient wound-care with non-surgical debridement methods) in those cases whose wound-depths are 'difficult-to-decide'.

Patients and Methods:

The subjects: Pediatric burn-victims (n=47) who were treated with Suprathel® following outpatient wound-care with non-surgical debridement methods (2013-2016)

Non-surgical debridement (every alternate day)

- Debridement of thin necrotic material: *Triticum Vulgare* (fito krem, Abdi İbrahim, İstanbul-Turkey)
- Debridement of thick necrotic material: Modified starch polymer gel (Askina gel, Braun, Sligo-Ireland)
- After elimination of necrotic material, outpatient application of Suprathel® (Figure 1)

Collected Data:

- Age, sex, burn-cause, extent of burns, depth of burn-wounds, body-sites affected;
- Time-intervals between occurrence of injury and admission;
- Time-intervals between admission and Suprathel® application;
- Time-intervals between occurrence of injury and completion of epithelization
- Numbers of Suprathel® applications,
- Surgical-debridements, split-thickness-skin-graftings/full-thickness-skin-graftings (STSG/FTSG)
- Requirements of physiotherapy/splints, reconstructive surgeries (mean±SEM).
- **Followup:** 3 months-2 years (Figure 2)

Figure 1

Figure 2

Results:

Burn cause	Age, and sex distribution (M/F)	TBSA/TBSA partial thickness (%)
Scalds (n=34, 72,3%)	4,96±15 and 0,46/1	3,38±0,9/ 3,27±0,9
Contact burn (n=9, 19,1%)	2,28±0,9 and 1/2	1,5±0,24/1,5±0,25
Flash Burns (n=2, 4,3%)	15,5±0,5 and 2/0	8,5±0,24/8,5±1,5
Flame burns (n=2, 4,3%)	16±1 and 1/1	3,5±0,5/ 3±1
Total (n=47, 100%)	5,14±0,8 and 0,68/1	3,18±0,4/ 3,02±0,39

Time interval between injury and admission	Time interval between admission and suprathel	Time interval between injury and epithelisation
1,6±0,36 days	6,53±0,64 days	17,4±1,07 days

Suprathel application: Once	Suprathel application: Twice	No Suprathel application:
66% (n=31)	34,04% (n=16)	burn wounds at head and neck in 12 cases

Affected Body sites:	Patients	
Hands	38,9%	(n=18)
Feet	31,9%	(n=15)
Upper extremities	38,9%	(n=18)
Lower extremities	14,9%	(n=7)
Trunk	14,9%	(n=7)
genitals	4,3%	(n=2)
Head and neck	29,8%	(n=14)

Treatment modalities	required	Not required
Acute/long-term follow up:		
Surgical debridement	17,4% (n=8)	82,6% (n=39)
STSG/FTSG	6,5% (n=3)	93,5% (n=44)
Physiotherapy	32,6% (n=15)	67,4% (n=32)
Splinting	11,4% (n=5)	88,6% (n=42)
Reconstructive surgery	4,3% (n=2)	95,7% (n=45)

DISCUSSION & CONCLUSIONS:

Outpatient wound-care with non-surgical debridements followed by Suprathel® application is a functional option for 'difficult-to-decide' partial-thickness burns in childhood. This method seems to reduce need for sedoanalgesia and to prevent exaggerated surgical approaches which may lead to painful and uncomfortable overtreatment courses.