Healing and Skin Protection for Indigent Residents with a Novel Product (Cyanoacrylate*) at one County Long Term Care Facility

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INTRODUCTION
Skin damage in residents of long term care facilities is a major concern, leading to pain and suffering, and increased costs. The dermal barrier can be damaged from various external assaults, for example, incontinence, friction, pressure, trauma, and skin stripping by adhesives. Such damage often starts as epidermal stripping, the formation of a partial thickness wound, or a Stage II pressure ulcer, and left untreated can progress into full thickness wounds that have the potential to become chronic.

In our experience, the skin health of our residents is affected by incontinence episodes, pressure, and abrasions. Though guidelines exist and are implemented to minimize the negative effects on the skin, some issues can not be completely eliminated in all residents. We believe that when skin injuries do occur, the patient would benefit from technologies that may repair the damage instantly with minimal discomfort.

A new class of compounds has recently become available, that reacts with the skin to provide a flexible, robust barrier that appears to be resistant to fluids and abrasions, as tested in controlled trials. An apparent advantage of such materials is there are no volatile solvents, which have potential for safety and health issues. These new compounds, cyanoacrylates, have been used in healthcare in various skin contact applications and seem to have an excellent safety record.

METHODOLOGY
In this safety and effectiveness study, a convenience sample was chosen from our resident population, consisting of several patients that had Stage II pressure ulcers (and incontinence Associated Dermatitis or IAD) on their buttocks, and a morbidly obese resident with denuded skin on her thigh. The cyanoacrylate material was supplied in unit dose ampoules, which were activated by breaking the ampoule with digital pressure. Following this activation, the applicator tip of the vial was quickly placed into the wound, the liquid was reapplied. Because previously applied layers usually slough off during normal skin turnover, the liquid was reapplied. When the film was beginning to come off, allowing the affected area, during reapplication, the liquid was reapplied. This did not seem to affect the ability of product to protect the skin during the second or subsequent applications.

CASE PRESENTATIONS

1. KB is a 68 year old female with a history of substance use, diabetes on renal dialysis, Hemodialysis Dependency 2C, and a history of CVA presented upon return from an acute care facility with several Stage II skin breakdowns on her buttocks covered with a hydrocolloid like dressing.

2. WM is a 69 year old male who has lived in the LTC facility since his late 30's with a history of large pressure ulcers that were closed over 2 years ago. He remains at greater risk of future pressure ulcer development.

3. AS is a 53 year old female with Multiple Sclerosis and morbidly obese, pulmonary embolism, and a recent MI presented with a blister on her left inner thigh. This was thought to be related to a foley catheter. Her mobility is very limited and has previously self dislodged the catheter.

4. GB is a 66 year old male with ALS and is independent in his wheelchair. With his strong willed nature, he chooses to remain in his wheelchair continuously (24/7) with unrelieved pressure despite developing areas of pressure.

5. VF is an 84 year old female with dementia and chronic lower extremity venous disease with copious amounts of drainage. She is in a wheelchair most of the daytime hours. Otherwise she is bedbound and wears adult briefs for incontinence.

6. GS is a 66 year old male with severe Parkinson's disease and is bedridden. He has history of large pressure ulcers that were closed over 2 years ago. He remains at greater risk of future pressure ulcer development.

RESULTS
In our experience, the product was easy to activate, apply, and in most cases dried completely to touch within 30 seconds. There was no sting or pain reported by the patients, who were all conscious during the application. The purple color of the film was helpful in determining when the film was beginning to come off, allowing for timely reapplication of the product. In patients with IAD associated pressure ulcers, the film seemed to provide complete and full protection against incontinence related bodily fluids and such fluids could be wiped off the affected surface with no visible maceration of skin.

DISCUSSION
The main issue that we have with other skin protectants and barriers in the management of damaged and denuded skin is that they “sting”. The non-stinging versions of these products contain solvents that are problematic from a health, safety and environmental perspective. The corrosive nature of bodily fluids requires a greater amount of protection than what conventional skin preps can provide. We have been intrigued by cyanoacrylates, whose medical use has increased over time and now are available in unit dose forms that deliver fluid to areas that are typically denuded and damaged. In our limited study, we found value in the cyanoacrylate product, in particular the absence of stinging and solvents, the product standing up to bodily fluids, its flexibility, and patient comfort aspects. All of these features are of value to the time and resource constrained –clinician in long term care practice.

CONCLUSION
The cyanoacrylate liquid skin protectant set up instantly on the skin, providing immediate protection against the corrosive fluids of incontinence. In our observations we found the residents received strong protection from further skin damage and promoted skin closure in this cost effective and clinically efficient product. The staff and residents described a pain free application and overall care satisfaction.

REFERENCES


PRODUCT NOTATION
*Marathon™ is a registered trademark of Medline Industries, Inc. Mundelein, IL.

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