

Indiana Medicaid Therapeutics Committee Therapeutic Class Review Summary

Therapeutic class:

Wound Care Products

Overview:

The goals of wound care are to prevent infection and promote tissue growth. Necrotic tissue, which often occurs in stage III and stage IV wounds, delays healing, promotes infection and must be removed for proper tissue growth. The methods of necrotic tissue removal include surgical, sharp, mechanical, and enzymatic debridement. Enzymatic debridement involves application of enzymatic products to dissolve necrotic tissue. The process of enzymatic debridement is slow and it should be considered for patients who are not candidates for surgical debridement.

The available enzymatic agents are as followings:

- 1) Papain/urea combination: Papain is a proteolytic enzyme, which digest nonviable tissue with no effect on viable tissue. However, it is relative ineffective when use alone. Papain requires the presence of activators to stimulate its digestive potency. Urea exposes the sulfhydryl groups in the nonviable tissue, which allows papain to attach to those tissues and perform degradation. Therefore, papain is often used in combination with urea. The products with this combination are Accuzyme® Spray, Accuzyme® Ointment, EtheZyme™, EtheZyme™ 830, Gladase™, Kovia®.
- 2) Chlorophyllin copper complex/papain/urea combination: In addition to papain and urea, chlorophyllin copper complex is added to the combination to promote healing, control local inflammation and reduce wound odor. The products with this combination are Gladase™-C, Panafil® ointment, Panafil® Spray, Ziox™.
- 3) Castor oil/peru balsam/trypsin combination: Trypsin acts as a mild debriding agent that helps keep the wound site free of necrotic tissue. Balsam Peru is an effective capillary bed stimulant used to increase circulation in the wound site area. It also has a mildly bactericidal action. Castor Oil is used to improve epithelialization by reducing premature epithelial dehydration and keratinization. Also, it can act as a protective layer. The products with this combinations are Granul-derm™, Granulex®, TBC Spray, Xenaderm™.
- 4) Collagenase: Collagenase digests collagen in necrotic tissue, which facilitates granulation tissue formation. Collagen in healthy tissue is not affected by collagenase. The available product is Santyl.

The above products are designed to remove necrotic tissue. The indications are mainly for pressure ulcer (decubitus), and burns. Papain and urea combinations have also been used in diabetic foot ulcer. Although, some products have the same active ingredients, they are different in concentration or formulation (ointment, spray). Most of the agents are not rated in the orange book for their interchangeable status. Published data for comparative studies of these products are also limited. However, in general, products contain papain and urea seem to have a similar effect when compared to the collagenase products; products contain castor oil, peru balsam and trypsin are milder debriding agents; and ointments are more efficient than sprays.

A relatively new wound care agent, becaplermin, was developed to promote tissue growth. Becaplermin has biological activity similar to that of endogenous platelet-derived growth factor. It is indicated for the treatment of lower extremity neuropathic diabetic ulcers. However, its effects diminish when used in areas without adequate blood supply. Although becaplermin has been used in the management of pressure ulcers, it is not a FDA approved indication.

GENERIC NAME	BRAND NAME	MANUFACTURER	GENERIC
Papain; Urea	Accuzyme® Spray, Accuzyme® Ointment, EtheZyme™, EtheZyme™ 830, Gladase™, Kovia®	Healthpoint Ltd, Smith&Nephew, Stratus Pharmaceutical, Ethex Corp. and others	No information
Castor Oil; Peru Balsam; Trypsin	Granul-derm™, Granulex®, TBC Spray, Xenaderm™	Mylan Bertek, Healthpoint Ltd and others	No information
Chlorophyllin Copper Complex; Papain; Urea	Gladase™-C, Panafil® ointment, Panafil® Spray, Ziox™	Healthpoint Ltd, Smith&Nephew, Cypress Pharmaceutical, Stratus Pharmaceutical and others	No information
Collagenase	Collagenase Santyl®, Santyl®	Ross Division of Abbott Laboratories	N
Becaplermin, rh-PDGF	Regranex®	Ortho-McNeil	N

Summary:

In clinical practice, products containing papain and urea seem to have a similar effect when compared to products containing collagenase; products contain castor oil, peru balsam and trypsin are milder debriding agents; and ointments are more efficient than sprays.

Becaplermin promotes tissue growth, which is different from enzymatic debridement agents. Becaplermin needs to be reserved for the treatment of diabetic ulcer of lower extremities and with adequate blood supply.