Abstract

Significance: Absorptive, antibacterial dressings that assist in controlling bioburden without risks of cytotoxicity or residual absorption can be effectively used for prolonged periods throughout the wound healing continuum.

Recent Advances: Until recently, gentian violet and methylene blue (GV/MB) antibacterial dressings have been commercially available only in polyvinyl alcohol (PVA) foam; polyurethane (PU) foam bonded with GV and MB with thin film backing is now commercially available. GV/MB PU foam does not require hydration or a necessary secondary dressing, GV/MB PVA and PU foam dressings were recently granted FDA clearance as antibacterial dressings, as opposed to bacteriostatic dressings as previously classified. Within the class of antibacterial dressings, GV/MB foam dressings are a lower cost alternative to silver or iodine-based antibacterial dressings with no risk of absorption of any of the foam components into the tissues.

Critical Issues: Control of wound bioburden levels by antibacterial agents as well as absorption of excess exudate is crucial in preventing infections that drastically increase the price of wound care. Use of GV/MB dressings may improve wound healing outcomes and decrease overall costs through super absorption, promotion of autolytic debridement, bioburden reduction, ease of use, and decreased dressing change frequency.

Future directions: Evolution in resistant bacterial strains will drive continual changes in advanced wound care products. Demand will increase for economically priced, versatile wound care dressings that assist in debridement, maintain a moist wound environment, absorb and trap bacterial debris, and decrease dressing change frequency.

Case Study One:

58 year old WM with extensive cardiac history. CAD with 2 three vessel CABG’s, multiple percutaneous interventions and ablations without success, left ventricle ejection fraction is < 25%, dual chamber defibrillator pacemaker. Diagnosis of Diabetes since 2006. Pt has severe neuropathy in upper and lower extremities, thought to have been caused by Amiodarone. Patient has had chronic foot wound since 2006, being followed at a wound clinic near his home. In 2013 had a fasciectomy flap with subsequent dehiscence and callus, multiple debridements, treatments with an acellular dermal matrix, NPWT for 6 weeks and a skin graft, and still had an open wound. The deformity of foot has the appearance of a Charcot’s foot wound, (not diagnosed) patient now has an orthotic in his shoe to help off load pressure. WOCN’s were consulted to evaluate and treat this non-healing wound on 6/27. The wound measured 4 x 4 x 0.5cm. Pt was started on Gentian Violet and Methylene Blue Polyurethane (GV/MB PU foam dressing), after conservative sharp debridement of thick callous around rolled wound edges (epiphleb), Patient continued to use GV/MB PU foam at home, and was readmitted 7/23 for cardiac issues. The wound had a significant decrease in size for a chronic, non-healing wound, to 3.5 x 3.5 x 0.3cm and the wound edges are now open, with offloading and advanced wound care measures, this has a greater chance to get to closure.

Case Study Two:

58 year old AAM patient with Cerebral Palsy admitted with unstageable pressure ulcers to his right shoulder, right trochanter and left forearm as a result of traumatic fall and lying on the floor for approximately 2 days. Wounds had been treated for 2 weeks with hydrogel at SNF prior to admission. The right shoulder wound was covered with 80% yellow slough, hypergranulation tissue noted to 20% of wound GV/MB PU foam was chosen as the treatment of choice for his right shoulder. After 1 week, slough is reduced to approximately 40% and wound is beefy red. Wound size: 3.3cm x 3.0 cm x 0.1 cm. GV/MB PU foam aided in autolytic debridement, control of hypergranulation tissue, and wound size reduction.

Case Study Three:

59 year old AAM with past history of CVA, Diabetes, CKD, CHF, and GERD admitted from Skilled Nursing facility due to elevated temperature, decrease in oxygen saturation, and decrease LOC. Pt admitted on 5/29 with a chronic, unstageable pressure ulcer measuring 3 x 3.5 x 0.1cm, to left lateral leg covered with 90% yellow adherent slough and 10% agranular tissue with maceration noted to peri-wound. Pt was being managed with Leptospermum Honey while in skilled nursing facility prior to admission. Pt leg was externally rotated to the left which decreased healing time and caused more maceration with current dressing. During hospital course wound bed was treated with GV/MB PU foam to aid in autolytic debridement, exudate management, and decrease bacterial colonization. On 6/21 wound now measures 2 x 1 x 0.1cm, with no remaining slough. Patient’s wound went to closure after discharge, using GV/MB PU foam.