MILITARY APPLICATIONS OF SILVER-NYLON DRESSINGS

INTRODUCTION:
Medical support of military operations involves treatment of massive soft tissue wounds, burns, open fractures, blast injuries and traumatic amputations under conditions that are often austere and far from supply lines. Combat Support Hospitals presently deployed in Iraq and Afghanistan are designated for stabilization and rapid transfer of injured patients back to the United States, but are often tasked with the long-term management of severely injured populations when injured. The rapid evolution of military patients back to the United States means that patients cannot be left for observation, and most require multiple teams of care providers during evacuations. The long-term management of injured burn patients is difficult because of personnel and supply limitations. Casualty evacuation routine dressing changes often cannot be performed at base and must be taken to the operating room. In these situations, a simple anti-microbial dressing (Moisture-Resistant Adhesive Covering) is increasingly being used as a multi-purpose dressing for wounds of all types. Silver-nylon dressings that release ionic silver have been commercially available for many years. Management of large burns, silver-nylon dressings are often changed once every three days, rather than the traditional 24-hour burn dressings that release ionic silver or silver sulfadiazene cream is used, representing significant cost savings in personnel and dressing materials. Certain silver dressings are approved by the Food and Drug Administration for up to 7 days of use and this can result in even greater time and material savings. There is significant variation in silver content and release rates between different products. The silver content of the product currently used in the US military is 90 to 100 times higher than on other brands of silver dressings presently on the market. The common delivery of silver ion at these high levels means that clinically significant metallic silver dust does not occur.

In this study, a retrospectively reviewed published reports of the medical evaluation of clinical trials of silver-nylon dressing in conditions if silver-nylon dressings can function as a universal dressing for military use.

METHODS:
A Medline literature review for the years 1973-2010 produced 15 publications describing the laboratory or clinical use of silver-nylon dressings in burn care or combat operations (6-20).

RESULTS:
Silver-nylon dressings are a true force multiplier and should be considered an essential product for both military and civilian (cotton swab) applications.

DISCUSSION:
The nature of wartime medical support is changing. For most of the conflicts of the 20th century, very large staff or field hospitals could be positioned in close to the front line to provide high-service critical care to the wounded. In modern wars, large numbers of severely injured soldiers could be treated for extended periods of time. Medical planning during the Cold War relied on the availability of such facilities positioned in Europe, along with robust supply chains to keep them functioning. With the downsizing of military forces that followed the Cold War, it is no longer possible to call for field or transport or large, fixed hospitals. Following a joint-service streaming of military medical forces in the late 1980s, the medical facilities in presence have become smaller, modular, and easier to move but are not as nearly well-stocked as the old fixed facilities that they replaced. This means that faced with costly airlifted material and frequent re-supply must be carried out, involving other staff in expensive time and personnelensive. In these situations, silver-nylon dressings keep a clear advantage as a simple dressing system.

SUMMARY:
For military medical planners, the end of the Cold War has produced new threats and new challenges. Successful medical response will require new solutions and new technologies. The pathogens seen in wartime injuries continue to evolve, and the facilities utilized for deployed medical care are now modular and mobile, but less able to provide comprehensive or extended care. Logistic chains are longer and aeromedical evacuation is more expensive.

REFERENCES:
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EXPERIMENTAL SILVER-NYLON DRESSING, "ELECTRIC BANDAGE" AND "COLD WAVE" DRESSING

IN USE AT THE US ARMY BURN CENTER, EARLY 1990s

SILVER-NYLON DRESSINGS APPLIED IN THE OPERATING ROOM AT A COMBAT SUPPORT HOSPITAL IN AFGHANISTAN, 2011

Silver-nylon dressings are effective, easy to use (particularly by inexperienced personnel), easy to store and easy to transport. Because they can be used for multiple indications, silver-nylon dressings are a true force multiplier and should be considered an essential medical product for both military and civilian (cotton swab) applications.