

Efficacy of Silver Impregnated Nanocrystalline Dressing in Managing Bacterial Resistant Chronic Wounds in Hospital Kuala Lumpur

Dr Harikrishna K.R.Nair FMSWCP, AMO Banushay Balakrishnan

INTRODUCTION

Wound management Dressings are part of a holistic wound management plan with personalized patient goals. One goal may be to facilitate faster wound healing by providing the optimal environment for healing process. Agicoat is a silver impregnated dressing facilitating the delivery of silver to the wound surface. It contains nanocrystalline silver which when moistened with sterile water releases silver ions onto the wound surface. The invitro antimicrobial action of silver has been demonstrated to destroy within 30 minutes, both Gram positives and negative bacteria as well as Vancomycin resistant enterococci (VRE) and Methicillin resistant S. Aureus.

The action is accomplished by the silver ions binding to tissue proteins causing a structural change in the bacterial cell membranes. The silver then binds and denatures the bacterial DNA and RNA, thus inhibiting replication.

The action of Agicoat is fast in destroying pathogens such as Escherichia coli, S. Aureus and Methicillin resistant S. Aureus and Pseudomonas aeruginosa.

A Study was taken to determine the Efficacy of Agicoat Silver Nanocrystalline Dressing to Manage Bacterial Resistant Chronic wounds with different aetiology. Five patients were assessed:- one venous ulcer wound, one benign ulcer, one lower limb ulcer, one diabetic foot ulcer and one diabetic foot abscess.

METHODOLOGY

The wound were assessed using TIME concept. The wounds were cleansed using Distilled water. De-sloughing and debridement was done to remove the slough, necrotic tissue and devitalized tissue. Nano Silver dressing was used to reduce the bacterial burden. Changes in dressing were made every 7 days. Trial was done for four (4) to six (6) weeks

RESULTS

All wounds started to heal with granulation tissue. There was reduction of the exudates and the bacterial bioburden. Wound size reduction was seen. Healing was noted with the Agicoat Silver Nanocrystalline Dressing.

RESULTS



Before



After

CASE 1

55 Years old / Malay / Female

Medical History

Underlying diabetes mellitus, Hypertension, and History of ray's amputation of 2nd, 3rd, 4th, and 5th toes (right). Had been admitted in medical ward for right diabetic foot ulcer and debridement done on 29/09/2015.

On Examination

Right DFU post Ray's amputation over lateral aspect
Granulation tissue seen
Biofilm noted
Sinus tracking (8cm) @ 12 o'clock position
Heavy serous exudate
Macerated edges



Before



After

CASE 2

62 years old / Chinese / Female

Medical History

Underlying scoliosis for the past 5 years. No history of diabetes.

Wound History

She had previous multiple admission to ward for right lower limb venous ulcer for the past 7 years.

Presented to us last year on May with venous ulcer wound on her lower right leg.

Necrotic tissue seen, heavy yellowish exudates, Malodour.

Wound size

1st agicoat ag using : 14th June 2016
L : 8.5 cm x W : 10 cm



Before



After

CASE 3

57 Years old / Malay / Male

Medical History

Underlying diabetes mellitus since age 19. He was admitted for left diabetic foot abscess and incision and drainage done by orthopedic.

On Examination

Left dorsal over lateral aspect
Granulation tissue seen
Biofilm noted
Heavy serous exudate
Macerated edges



Before



After

CASE 4

24 years old / Malay / Male

Medical History

u/l left leg benign ulcer under dermatology HKL since June 2015.

Biopsy done (12/1/16) – consistent with benign ulcer, no malignancy/granuloma identified.

Covered with multiple courses of antibiotics.

Wound History

He had previous multiple admission to ward for left lower limb venous ulcer.

On Examination

Ulcer L : 8 cm x W : 7 cm on left shin
Overgranulation tissue
Greenish discharge, sloughy tissue seen, malodour, surrounding skin wet and mild erythema.



Right Leg – Before



Right Leg – After



Left Leg – Before



Left Leg – After

CASE 5

47 Years old / Malay / Female

Medical History

No history of diabetes

Underlying cellulitis for the past 1 year

Previously had bilateral lower limb ulcer

On Examination

Bilateral lower limb ulcer
Heavy yellowish exudate
Sloughy tissue seen
Granulation tissue seen
Wound size (right) :
12.5cm x 9.7cm
Wound size (left) :
9cm x 7cm