WOUND CARE: 101
WHAT'S NEW IN MEDICINE
2015

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DISCLOSURES

None.
GOALS

General understanding of prevalence, morbidity and mortality associated with chronic wounds.
Facilitate patient education and multidisciplinary approach to wound care.
WARNING TO AUDIENCE

Disclaimer: Please be aware this presentation contains graphic photos that may not be suitable to those enjoying lunch
WHY DO YOU NEED TO KNOW ABOUT CHRONIC WOUNDS?

- Significant patient population
- Significant morbidity/mortality
- Quality of life
- Economic burden
- Waste reduction
MORE PEOPLE ARE LIVING WITH A CHRONIC WOUND THAN WITH BREAST CANCER, COLON CANCER, LUNG CANCER AND LEUKEMIA COMBINED.
In the United States:

Chronic wounds affect around 6.5 million patients.

Prevalence growing rapidly due to:
  increasing health care costs
  aging population
  sharp rise in the incidence of diabetes and obesity

$25 billion is spent annually on treatment of chronic wounds.
Chronic Wounds...
A Silent Epidemic

Rarely seen in individuals who are otherwise healthy.

Frequently suffer from “highly branded” diseases such as diabetes and obesity (co morbid conditions).

This seems to have overshadowed the significance of wounds per se as a major health problem.

Represent a silent epidemic that affects a large fraction of the world population and poses major and gathering threat to the public health and economy of the United States.
FORMAL CHRONIC WOUND CARE EDUCATION

Little to no training.
Inefficient/uncomfortable/time consuming for providers.

“If it is wet- dry it... If it is dry- wet it.”
4 PARTS OF NORMAL WOUND HEALING

1. Vascular Response (Hemostasis)
2. Inflammatory Response (Inflammation)
3. Proliferative Phase (Granulation, Epithelialization)
4. Maturation Phase (Reconstruction phase)

A wound that has failed to proceed through an orderly and timely reparative process to produce anatomic and functional integrity of the injured site.

IF THIS TAKES LONGER THAN 3-4 WEEKS…
THE WOUND BECOMES AN “ULCER”.
WHO GETS WOUNDS?

Wounds in “otherwise healthy” patients should prompt investigation.
Co morbid conditions- often multiple.
History (even remote) of smoking

In my experience the causal factor is usually not just one co morbid condition.
It is “the perfect storm”.
ARE DM RELATED WOUNDS AND AMPUTATIONS WORSE THAN CANCER?

5-year survival rate after one major lower extremity amputation is about 50%

Once amputation occurs, 50% of patients will develop an ulcer in the contralateral limb within 5 years

International Wound Journal Vol 4 No 4; 2007
DFU... A FEW FACTS

Low survival prognosis
DFU 3-year cumulative mortality rate of 28%

*Amputated patients approaching 50% mortality*

Recurrence rate is 66%

Lower-extremity amputation rate 28 X that of people without diabetes

Estimated up to 25% of all diabetics will develop a diabetic foot ulcer

Estimated 12% of individuals with a foot ulcer will require amputation

Total annual cost in the US has been estimated to be as high as $5B

Diabetes-related amputations cost approximately $3 B

67% percent of all lower extremity amputation patients have diabetes
VENOUS ULCERS

70-90% of all Lower Extremity Wounds.
Up to one-third of treated patients experience four or more episodes of recurrence (60-70 % within 5 years).
Prevalence in USA - 600,000 annually.
Annual cost of treating VLU in the US - $2.5-3.5 billion.
Compliance is difficult.
>50% take over 6 mo to heal.
VENOUS ULCERS - VIEW FROM THE TOP

81% believe that their mobility is adversely affected

73% disturbed sleep

68% reported that the ulcer had a negative emotional impact on their lives, including feelings of fear, social isolation, anger, depression, and negative self-image

58% found caring for the ulcer burdensome

50% mood affected.

Younger working patients, leg ulceration correlated with time lost from work, job loss, and adverse effects on finances

Persistent pain and pain at dressing changes results in lower activity, depression, irritation and reduced social activity

Early retirement is found in up to 12.5% of workers with venous ulcers

Cost 2 billion dollars annually to lost wages and work days
NON-ADHERENCE... PATIENTS PERSPECTIVE

Pain, discomfort and lack of valid lifestyle advice by healthcare professionals were primary reasons.

Healthcare professionals mainly focus on patient-related factors such as poor motivation, lack of knowledge and understanding and unwillingness.

Patient beliefs that compression was unnecessary, uncomfortable, worthwhile and prevented recurrence significantly determined (non-)adherence.

ARTERIAL ULCERS

Between toes or tips of toes
Over phalangeal heads
Around lateral malleolus
Areas subjected to trauma/rubbing footwear
Even wound margins
Punched out appearance
Pale, deep wound bed
Blanched peri-wound tissue
Extreme pain
Cellulitis
Minimal exudate
Gangrene/necrosis
SO... I AM TELLING YOU

- A significant patient population has chronic wounds.
- The patient population with wounds is growing.
- Patient and their loved ones quality of life is miserable.
- Associated mortality is high.
- More often than not providers, consultants and supporting team members have little to no training.
- Huge cost associated has lead to overwhelming number of products from industry.
KAIKAKU

*Japanese* for "radical change"

If a wound is not improving we are missing something…
REMEMBER THE BASICS OF GOOD MEDICINE

Dedicated visit devoted to the wound
Ask about:
  - Patient goals
  - Barriers to compliance
  - Support systems
Perform a good physical exam (should include measurements & photos if possible)
Make several weekly follow up visits
Don’t be afraid to challenge established diagnosis
Ask for a spouse/ support person to accompany patient
Explain in terms patients understand
Let them know you won't give up
MEASUREMENTS:
"Head to toe, hip to hip, depth".
L x W x D

Ulcers are then numbered clockwise based on location. The head is 1200 and the feet are at the 0600 position.

DO THIS AT EACH VISIT!
FOLLOW UP VISITS

Standard measurements/photos of EACH wound
Flexibility of treatments to respond to the changing needs of both the patient and the wound
Ability to kaikaku if a wound is not progressing as expected...a piece of the puzzle is not being addressed
THE MOST IMPORTANT COMPONENT OF WOUND TREATMENT IS PATIENT BUY-IN.

Patients MUST be educated on reasoning behind treatment if they are going to be an active participant.

Patients MUST understand that if they want to heal, wound care is not simply a weekly task. They need to actively participate in multidisciplinary approach.
WHAT’S NEW IN MEDICINE

Purpose

To provide the tools to enable the healthcare provider to manage the care of patients who need Internal Medicine treatment or treatment for Infectious Diseases for better patient outcomes.
Perfusion Assessment
“The heart pumps blood into the arteries. First the big arteries, then the smaller ones, all the way down to the tiny ones in the toes. We need to make sure that those pipes/highways are open so they can carry all the building blocks we need to rebuild this tissue. It is also important because if you need antibiotics, they are delivered in the blood. If blood can’t get to it the antibiotics can’t either. We will start with a simple test that uses blood pressure cuffs. If anything looks funny, we can get an ultrasound.”

“Your pipes are clogged.”

“You don’t have any hair on your legs...It probably isn’t from boots. It might be because you don’t have enough blood to support hair growth.”
VENOUS COMPONENT

“When the artery finally delivers the blood, the veins take the used up blood away. Sometimes there is a problem in the veins. We can get a simple test to see if that is part of the problem.”

“That brown stuff on your leg is like rust...it isn’t a suntan”

“Its like cutting the cord on an elevator”

“Your veins are trashed”

“Your veins are leaky- that’s why they swell”

“It is like backed up pipes”
INFECTION

“All of that goo sitting on the top of your wound is a nice, dark, warm hiding place for bacteria. Oral antibiotics don’t really work well on the goo because its all dead. We are going to attack it directly. I can culture it if it makes you feel better, but it will more than likely grow out a bug and obligate you to antibiotics that can be pretty rough. If the time comes that you need antibiotics, they may not work. If anything changes, like more pain, change in wound juice color or smell, red around the area, your dog gets interested- let me know and we can get you started on something.”
TO SWAB OR NOT TO SWAB...

It should be remembered that there is little benefit in performing swabs to identify bacteria in wounds that are not showing signs of infection. The presence of bacteria does not equate to infection. The important question is whether tissue is infected - NOT the slough and debris lying on it.

Swabs should be taken after a wound has been cleansed with normal saline and any loose debris removed - the aim being to sample an area of viable wound bed.
CRITICAL COLONIZATION

It describes a state where ‘host defenses are unable to maintain a healthy [bacterial] balance’ and bacteria are sufficient in number to delay healing but not cause a classical host reaction, such as heat, redness or swelling.
CRITICAL COLONIZATION

Wound not responding to appropriate care with underlying pathologies and no cellulitis

No cellulitis but with exacerbation of pain, or pain becoming present when it was not before, or change in the quality experience of pain

Thick slough not responding to standard techniques for removal

Slough quickly returns after rapid debridement techniques (larval or sharp surgical)

Intransigent odor

Hyper granulation tissue
DID YOU KNOW...

We ask our patients to:

1) Cut their nails short and use surgical scrub brushes to clean under nails.
2) Use “pump soap” in the shower as well as when washing their wound followed by paper towels to blot it dry.
3) Wipe down cell phones, keyboards, doorknobs, light switches, keys…
No differences were noted in the rates of infection and healing between the use of tap water and normal sterile saline in the cleansing of acute and chronic wounds.
DIABETES

Leukocyte Chemotaxis and mitosis impaired with glucose over 180.

“Cells get dumb when your sugars are over 180. They can't divide or fight infection.”

“Bacteria love sugar. When your sugars are high, you are giving bacteria a banquet.”
EMPOWER YOUR PATIENTS THROUGH NUTRITION

Pre albumin and albumin
Zinc, multivitamin, vitamin C, and Juven (arginine & glutamine) are all recommended to promote wound healing

“Even if we get blood to the wound, if there are no building blocks in it how can it make new meat?”

“You need meat to make meat”

“You are losing your lunch from this wound”

“A draining wound is like breastfeeding a child - you need to replace what you are losing”
PREALBUMIN

ALBUMIN
ANESTHESIA IN WOUND CARE

We use Lido 4% soaked gauze.
Can give Rx to patients to apply prior to visit and dressing change.
CLEAN IT UP

Soap and water is OK

Pay attention to the peri-ulcer area - the area around the ulcer needs attention too!
If you look for protocols on dressing selection or debridement rates and type of debridement appropriate for different ulcer types in Cochrane and find something let me know…

- Most studies are driven by the industry.
- Difficult to use only one product for the duration of treatment.
DEBRIDEMENT

Definition:

The process of removing dead (necrotic) tissue or foreign material from and around a wound to expose healthy tissue

Purpose:

Wound or ulcer can not be properly evaluated until the dead tissue or foreign matter is removed

Chronic ulcers have underlying pathogenic abnormalities that cause necrotic tissue to accumulate

Repeated removal of necrotic tissue will be necessary throughout the lifespan of the chronic wound to facilitate wound progression and obtain healthy granulation tissue

“I can put the fanciest dressing in the world on your wound, but if I put it on top of a bunch of goo- it wont do you a bit of good.”
PURPOSE OF DEBRIDEMENT

Reduction of bacterial burden by decreasing the amount of necrotic tissue in the ulcer bed associated with wound infection.

Enhancement and prevention of infection by removal of devascularized tissue/foreign bodies.

Activates release of growth factors and tissue cytokines that help promote the formation of well vascularized healthy granulation tissue.

Remove chronic wound exudate.

“Bring fresh new troops to the front line.”
**Surgical**

“Sharp debridement”

Uses a scalpel, scissors, or other instrument to cutaway dead tissue

Most efficient

“Heal with steel”

**Mechanical**

“Wet to dry”

Dressing is removed & dead tissue is pulled

One of the oldest methods

VERY painful
Chemical
Certain enzymes and other compounds to dissolve necrotic tissue.
Cross-hatch to allow the enzyme to penetrate

Autolytic
Takes advantage of the body’s own ability to dissolve dead tissue
Accomplished with a variety of dressings that trap wound fluid that contains growth factors, enzymes, and immune cells that promote wound healing
Takes the longest to work
BIOLGICAL DEBRIDEMENT

Maggot/ larval therapy
Known since antiquity
Larvae of Lucilia sericata (greenbottle fly) are applied to the wound
Can digest necrotic tissue and pathogenic bacteria
Rapid and selective

NOT ALL MAGGOTS ONLY EAT DEAD TISSUE.
LARVAL THERAPY
DRESSINGS

Wide range of options

“If it is dry make it wet - if it is wet make it dry”

TREMENDOUS opportunity for reduction of patient pain and WASTE!!!
Negative pressure therapy system that patient wears 24/7

Changed every 3 days

“Brings in the groceries and takes out the trash”

USE LIDOCAINE WITH CHANGES

Teach patient proper application to avoid complications

New postoperative disposable devices that are applied for 7 days.
COMPRESSSION

Hateful
Compliance is often an issue
Difficult to put on/take off
Start low and go slow
Consider pneumatic compression
Make sure patient has adequate vascular status

“Girdle for your veins and lymphatic system”
“Vice grip around the veins so they don’t leak”
COMPRESSION
SKIN SUBSTITUTES

Multiple products available
Cost concerns
Cost benefits
Wound bed prep is key
COST OF DRESSINGS

Chronic wound care products: a $14B industry.

TREMENDOUS OPPORTUNITY FOR IMPROVEMENT IN PATIENT SATISFACTION AND QUALITY OF LIFE.

TREMENDOUS OPPORTUNITY FOR COST REDUCTION.

Wear the dressings you expect your patient to.
BASIC CATEGORIES

Alginate
Foam
Collagen
Honey
Hydrocolloid
Hydrogel
Contact layer
Silver - high dose
Silver - low dose
SO WHAT DO I USE?
THINGS TO REMEMBER

Wounds change and the dressings should too!
Adhesive can be brutal - use skin barrier
Look for straight lines as a sign of reaction to dressing

Thin skin - remember to use dressings that deactivate when pulled to the side or with water
Dementia – Tegaderm, VAC drape

Painful - consider silicone contact layer
Odor - use Carboflex, Febreze, charcoal or kitty litter in home
Consider abuse/neglect
TEAM CONTINUITY

Supplies - delivered to the home and billed to patients insurance. If not covered by insurance it is MUCH cheaper this way. Most of what we use is not available in pharmacies

Detailed instructions on dressing changes

Follow up visits and when healed “Action Plan” if it opens

Open dialogue with Home Health, caregivers, nursing homes… THEY ARE YOUR EYES AND EARS IN THE FIELD

Anticipate repeat ulcers and implement prevention strategies
QUESTIONS?
THANK YOU
REFERENCES


Georgina Gethin Seamus Cowman Dinanda N Kolbach, Debridement for venous leg ulcers
  The Cochrane Library, DOI: 10.1002/14651858.CD008599


AAWC Fact Sheet 1: Chronic Wounds, May 2014