Pressure Ulcer Treatment

an educational webinar
December 8, 2015

Webinar Producer

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Objectives

• Recognize the effectiveness and comparative effectiveness of treatment strategies for pressure ulcers
• Identify the potential harms of treatment for pressure ulcers
• List clinical recommendations for treating patients with pressure ulcers
Treatment of Pressure Ulcers

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Vice President, Clinical Policy
American College of Physicians

Disclosure of Relationships

- Financial (direct or indirect): None
- Intellectual (direct): Author (guideline)
- Intellectual (indirect):
  - National Quality Forum
  - American Medical Association PCPIF
  - Guidelines International Network
  - Centers for Disease Control and Prevention
  - DECIDE
  - RIGHT

Introduction

- Pressure ulcers affect 3 million adults in the United States
- Healing rates are dependent on
  - Comorbid conditions
  - Clinical interventions
  - Ulcer severity
- Cost $37,800 to $70,000 per ulcer (total $11 billion)
Treatment of Pressure Ulcers: A Clinical Practice Guideline From the American College of Physicians

Purpose

- To present the evidence comparing the effectiveness and comparative effectiveness of treatment strategies for adults with pressure ulcers.

Key Questions

- Comparative effectiveness of Rx strategies for improved health outcomes and if Rx strategies differed on the basis of features (site, severity), patient characteristics, and health care settings?
- Harms of Rx strategies and if harms differed on the basis of features (site, severity), patient characteristics, and health care settings?
Methods

- Systematic review conducted by AHRQ Evidence-based Practice Center
- Literature search 1985 to October 2012
- Medline, EMBASE, CINAHL, etc
- Adults only literature

Interventions Evaluated

- Support surfaces (air fluidized beds, alternating air beds, low air loss beds, alternating air cushions)
- Nutrition (protein or amino acid supplementation, Vit C supplementation, Zinc supplementation)
- Medication (oxandrolone)
- Surgery

Interventions Evaluated

- Local wound applications [hydrocolloid dressings, foam dressings, debridging enzymes, radiant heat dressings, dextranomer paste, topical collagen, PDGF, topical phenytoin, maggot therapy, other biological agents (fibroblast, nerve, and macrophage suspension)]
- Adjunctive therapies, electrical stimulation, electromagnetic therapy, therapeutic ultrasound, negative pressure wound therapy, light therapy, laser therapy, wound therapy
Outcomes Evaluated

- Effectiveness of wound healing
  - Wound improvement
  - Reduction in pain
  - Prevention of serious complications
  - Recurrence rate
- Harms
  - Pain
  - Dermatologic complications
  - Bleeding
  - Infection

Evidence for Pressure Ulcer Treatment Strategies

Support Surfaces

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Quality of Evidence</th>
<th>Overall Treatment Effect vs. Comparator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air-fluidized beds vs. other surfaces</td>
<td>Moderate</td>
<td>Improved</td>
</tr>
<tr>
<td>Alternating-air beds vs. other surfaces</td>
<td>Low</td>
<td>No difference</td>
</tr>
<tr>
<td>Different brands of alternating-air beds</td>
<td>Moderate</td>
<td>No difference</td>
</tr>
<tr>
<td>Low-air-loss beds vs. other surfaces</td>
<td>Low</td>
<td>No difference</td>
</tr>
</tbody>
</table>
### Nutrition

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Quality of Evidence</th>
<th>Overall Treatment Effect vs. Comparator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vitamin C supplementation</td>
<td>Low</td>
<td>No difference</td>
</tr>
<tr>
<td>Protein supplementation</td>
<td>Moderate</td>
<td>Improved</td>
</tr>
</tbody>
</table>

### Medications

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Quality of Evidence</th>
<th>Overall Treatment Effect vs. Comparator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxandrolone vs. placebo</td>
<td>Low</td>
<td>No difference</td>
</tr>
</tbody>
</table>

### Local Wound Applications

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Quality of Evidence</th>
<th>Overall Treatment Effect vs. Comparator</th>
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</thead>
<tbody>
<tr>
<td>Hydrocolloid dressings vs. usual care</td>
<td>Low</td>
<td>Improved</td>
</tr>
<tr>
<td>Hydrocolloid dressings vs. foam dressings</td>
<td>Moderate</td>
<td>No difference</td>
</tr>
<tr>
<td>Radiant heat dressings vs. other dressings</td>
<td>Moderate</td>
<td>Mixed results</td>
</tr>
<tr>
<td>Dextranomer paste vs. wound dressings</td>
<td>Low</td>
<td>Worsened</td>
</tr>
<tr>
<td>Topical collagen vs. hydrocolloid dressings or usual care</td>
<td>Low</td>
<td>No difference</td>
</tr>
<tr>
<td>Platelet-derived growth factor vs. placebo</td>
<td>Low</td>
<td>Improved</td>
</tr>
</tbody>
</table>
## Adjunctive Therapies

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Quality of Evidence</th>
<th>Overall Treatment Effect vs. Comparator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electrical stimulation vs. sham treatment</td>
<td>Moderate</td>
<td>Improved</td>
</tr>
<tr>
<td>Electromagnetic therapy vs. sham treatment</td>
<td>Low</td>
<td>No difference</td>
</tr>
<tr>
<td>Therapeutic ultrasound vs. sham treatment</td>
<td>Low</td>
<td>No difference</td>
</tr>
<tr>
<td>Negative-pressure wound therapy vs. usual care</td>
<td>Low</td>
<td>No difference</td>
</tr>
<tr>
<td>Light therapy vs. sham treatment</td>
<td>Low</td>
<td>Mixed results</td>
</tr>
<tr>
<td>Laser therapy vs. sham treatment</td>
<td>Low</td>
<td>No difference</td>
</tr>
</tbody>
</table>

## Surgery

- Considered an option for advanced state pressure ulcers
- Insufficient evidence superiority of one surgical technique over another for wound closure
- Dehiscence most common adverse event
  - In patients when bone was removed
  - In patients with ischial ulcers

## Evidence for Pressure Ulcer Treatment Strategies Based on Pressure Ulcer Features, Patient Characteristics, and Health Care Settings

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Low Quality

- Sacral pressure ulcers had a lower recurrence rate after surgery than those with ischial pressure ulcers
- Electrical stimulation produced similar results in rehab vs hospitals

Harms of Treatment Strategies

- Support surfaces, nutrition, local wound applications (insufficient evidence)
- Surgery (most commonly reported was dehiscence)
- Adjunctive therapies
  - Electrical stimulation cause skin irritation
  - Light therapy or laser therapy with no substantial side effects

Harms of Treatment Strategies Based on Features, Patient Characteristics, and Health Care Settings

- Frail elderly had more adverse events than younger patients
- Ischial ulcers had higher complication rates than those with sacral or trochanteric ulcers
Recommendations

Recommendation 1
- ACP recommends that clinicians use protein or amino acid supplementation in patients with pressure ulcers to reduce wound size (Grade: weak recommendation, low-quality evidence).

Recommendation 2
- ACP recommends that clinicians use hydrocolloid or foam dressings in patients with pressure ulcers to reduce wound size (Grade: weak recommendation, low-quality evidence).
Recommendation 3

- ACP recommends that clinicians use electrical stimulation as adjunctive therapy in patients with pressure ulcers to accelerate wound healing (Grade: weak recommendation, moderate-quality evidence)

Inconclusive Areas of Evidence

- Alternating air chair cushions, 3 dimensional polyester overlays versus gel overlays, zinc supplementation etc
- Different wound dressings
- Need studies on complete wound healing and intermediate outcomes of complete wound healing.

High Value Care

- ACP does not recommend the use of various advanced support surfaces, including alternating air and low air loss beds.
- ACP supports the use of dressings other than PDGF, such as hydrocolloid and foam dressings.
Questions

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Thank you!