Is there a role for nutrition?

Michael Clark
Nutrition and wounds: Pressure ulcers and a new European Guideline.

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Overview

Nutrition and pressure ulcers
The new EPUAP guideline
–Process
–Recommendations
Nutrition and Pressure Ulcers
Poor Nutrition

‘Malnutrition is an important factor, second only to excessive pressure, in the aetiology…of pressure sores’

(Agarwal et al 1985)
How did we come to make such a claim?

Many studies have tried to link pressure ulcer aetiology and healing and changes in nutritional status.
Cullum and Clark 1992

Age
Weight
Systolic Blood Pressure
Total Serum Protein
Haemoglobin
Cullum and Clark 1992

51 subjects (29 F : 22 M)
mean age 82.4 years (69 - 97)
No ulcer 66%
Ulcer on admission 22%
Ulcer developed 12%
<table>
<thead>
<tr>
<th></th>
<th>No ulcers</th>
<th>Ulcers on admission</th>
<th>Ulcers developed</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td>82.6</td>
<td>85.1</td>
<td>76.3 *</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>54.9</td>
<td>48.3</td>
<td>47.8</td>
</tr>
<tr>
<td><strong>Systolic BP</strong></td>
<td>132</td>
<td>139</td>
<td>120</td>
</tr>
<tr>
<td><strong>Haemoglobin</strong></td>
<td>13.0</td>
<td>12.6</td>
<td>11.6</td>
</tr>
<tr>
<td><strong>Serum protein</strong></td>
<td>71.2</td>
<td>64.1 *</td>
<td>64.7 *</td>
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</table>
Pressure ulcer aetiology and nutrition

Limited observations in often weak studies

Are pressure ulcer patients malnourished?
Nutritional assessment and pressure ulcers
Nutritional Assessment

‘Well over 50 published nutritional screening tools and many more unpublished’ (Stratton et al 2003)

Either/or

Body Mass Index (weight height kg m \(^{-2}\))

Anthropometry (upper arm)

Weight Loss

Predicted future changes in weight

Loss of appetite

Diagnosis
Typical BMI ranges

- **< 18.5**: Underweight, chronic malnutrition probable
- **18.5-20**: Underweight, chronic malnutrition possible
- **20-25**: Desirable weight
- **25-30**: Overweight, increased risk of complications associated with chronic over-nutrition
- **> 30**: Obese
- **30-35**: Moderate risk of obesity-related complications
- **35-40**: High risk
- **> 40**: Very high risk
Nutrition and pressure ulcers

Prospective, multi-centre, multi-national cohort study of hospital in-patients

UK data (collected 1996-1998)

2507 subjects recruited across 4 hospitals

100 had pu on admission

117 developed pu in hospital
Results - BMI

No PU  (n=2027)

25.14* (95% CI 24.90-25.37)

PU on admission  (n=75)

22.53* (95% CI 21.11-23.96)

PU developed  (n=84)

24.25 (95% CI 22.66- 25.83)

All above limit that may mark malnutrition in elderly hospital patients
BMI and PU severity

Did patients with more severe pressure ulcers show greater malnutrition?

Grade 1 or 2; n=77; 24.18 (7.49)

Grade 3 or 4; n=7; 25.00 (5.15)
Appetite

If BMI not sensitive what about other approaches to assessing nutrition?

Very poor (10% - 24% of meals)

Poor (25% - 49%)

Fair (50% - 74%)

Good (75% - 100%)

Tube-fed
Appetite

- Very poor: 290
- Poor: 50
- Fair: 155
- Good: 360
- Tube-fed: 505
- Unknown: 1147
Appetite and PU

Poor/very poor appetite n=515

<table>
<thead>
<tr>
<th>Description</th>
<th>Count</th>
<th>Percentage</th>
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</thead>
<tbody>
<tr>
<td>No PU</td>
<td>428</td>
<td>(19.0%)</td>
</tr>
<tr>
<td>PU on admission</td>
<td>39</td>
<td>(41.0%)*</td>
</tr>
<tr>
<td>PU developed</td>
<td>48</td>
<td>(42.1%)*</td>
</tr>
</tbody>
</table>

* significant difference compared with no PU group
Causal relationship?

Poor nutrition

- Development of pressure ulcers
- Delayed healing

Unknown factor

- Poor nutrition
- Pressure ulcer development

Poor nutrition
Pressure ulcers and nutrition

Link between nutrition and pressure ulcers exists

Causal or association?

Need further high-quality clinical studies

Sensible precaution – improve and standardise clinical practice to enhance nutritional status

Role of the new EPUAP guideline
Nutrition in existing EPUAP guidelines

‘a full risk assessment in patients to include: General skin condition, skin assessment, mobility, moistness and incontinence, nutrition and pain’

‘Following assessment nutritionally compromised individuals should have a plan of appropriate support and/or supplementation that meets individual needs and is consistent with overall goals of therapy’

‘Ensure adequate dietary intake to prevent malnutrition to the extent that this is compatible with the individual’s wishes or condition’
EPUAP Guideline

Process

Recommendations
Process

2002 EPUAP Budapest – satellite meeting on nutrition prompted Professor Gerry Bennett to initiate guideline development

Gerry Bennett (UK)
Giuseppe Benati (Italy)
Denis Colin (France)
Pam Jackson (UK)
Bernadette Kerry (Ireland)
Gero Langer (Germany)
Jos Schols (Netherlands)
Mike Clark (UK)
Process

Meeting GDG – Amsterdam February 2003

First draft of text – late Summer

Presented at EPUAP Finland and published in EPUAP Review

Revised following comments

Final version – January 2004

Public launch July 2004 WUWHS Paris
Process

Guidelines translate evidence into recommendations for practice.

Evidence?

Cochrane review on pressure ulcers and nutrition – led by Gero Langer

Informal review of publications (>400) available on MEDLINE that linked nutrition and pressure ulcers
Grading of evidence

I Evidence from systematic review or meta-analysis of randomised controlled trials or at least one randomised controlled trial.

II Evidence from at least one controlled trial without randomisation or at least one other type of quasi-experimental study

III Evidence from non-experimental descriptive studies, such as comparative studies, correlation studies and case-control studies

IV Evidence from expert committee reports or opinions and/or clinical experience of respected authorities
Grading of recommendations

A Directly based on category I evidence

B Directly based on category II evidence or extrapolated recommendation from category I evidence

C Directly based on category III evidence or extrapolated recommendation from category I or II evidence

D Directly based on category IV evidence or extrapolated recommendation from category I, II or III evidence
Recommendations

Screening and assessment

Nutritional Intervention

Education

All recommendations equally valid, apply to prevention and treatment

Recommendations at D level unless specified
Recommendations

Where enhanced normal feeding is not possible, protein-energy rich supplements may be considered (1B recommendation).

The value of vitamin and trace element supplementation in pressure ulcer prevention is unclear (1B recommendation)

Established pu - Protein and calorie supplementation, Some vitamins and trace elements with anti-oxidant activity (Level 1B recommendation)
**Figure I. DECISION TREE ON NUTRITION IN PRESSURE ULCER (PU) PREVENTION AND TREATMENT**

Patient at risk of developing PU or with PU

In association with all other appropriate interventions according to guidelines

**NUTRITIONAL SCREENING**
- clinical judgement
- weight (kg), height (m), BMI (kg/m²)
- screening tool (e.g. MUST)

BMI (kg/m²) < 20
% weight loss > 10% in 6 months or > 5% in 1 month
high risk score from screening tool

**NUTRITIONAL ASSESSMENT**
this should be done preferably by a qualified member of a nutritional team

AT RISK OF OR WITH MALNUTRITION

**NUTRITIONAL INTERVENTION**
Plan includes patient’s choice and expected outcome

Is it possible to achieve adequate oral intake with normal diet?

FIRST

NO

YES

Can it be achieved using (specific) supplements in addition to normal diet?

SECOND

NO

YES

Can adequate intake be achieved by partial or total enteral feeding?

THIRD

YES

Did this plan meet the goals set with the patient?

NO

YES

Refer to the nutrition team or reset the goals with the patient.