The effect of a multidisciplinary outpatient team approach on outcomes in diabetic foot care: a single center study

E. Huizing, M.A. Schreve, W. Kortmann, J.P.J. Bakker, J.P.P.M. de Vries, Ç. Ünlü
Disclosure

Speaker name:
Ç. Ünlü ..........................................................

I have the following potential conflicts of interest to report:

☐ Consulting
☐ Employment in industry
☐ Stockholder of a healthcare company
☐ Owner of a healthcare company
☐ Other(s)

☒ I do not have any potential conflict of interest
Introduction
Multidisciplinary team in diabetic wound care

- Wound care nurse
- Physiatrist
- Case manager
- Vascular surgeon
- Internist
- Podiatrist
- Shoe technician
Recommendation 14: Ensure that after a revascularisation procedure in a patient with a diabetic foot ulcer, the patient is treated by a multidisciplinary team as part of a comprehensive care plan. (Strong; Low)
The Changes of Trends in the Diagnosis and Treatment of Diabetic Foot Ulcer over a 10-Year Period: Single Center Study

Choong Hee Kim¹*, Jun Sung Moon¹*, Seung Min Chung¹, Eun Jung Kong², Chul Hyun Park³, Woo Sung Yoon⁴, Tae Gon Kim⁵, Woong Kim⁶, Ji Sung Yoon¹, Kyu Chang Won¹, Hyoung Woo Lee¹

¹Division of Endocrinology and Metabolism, Department of Internal Medicine, Departments of Nuclear Medicine, Orthopedic Surgery, Division of Vascular Surgery, Department of Surgery, Department of Plastic Surgery, Division of Cardiology, Department of Internal Medicine, Yeungnam University College of Medicine, Daegu, Korea

No benefit in lower amputation rate
Introduction

Can treatment by a multidisciplinary team reduce amputations and improve wound healing in current standard care?
Methods

Non-MDT

Three different teams working on woundcare
Team 1: Vascular Surgeon and Wound care nurse
Team 2: Internist and podiatrist
Team 3: Physiatrist and shoe technician

MDT

Physiatrist
Podiatrist
Shoe technician

Internist
Vascular surgeon
Wound care nurse
Methods

Comparing year without MDT (2015) to a year with MDT (2017)

Inclusion criteria:
- Diabetes
- New foot ulcer
- Outpatient clinic NWZ location Alkmaar

Exclusion criteria:
- Lost to follow-up
- Amputation < 24 hours
- Amputation wound
Methods

Primary outcome:
Limb salvage at 1 year

Secondary outcomes:
Freedom from any amputation
Overall survival
Ulcer healing
## Results

<table>
<thead>
<tr>
<th></th>
<th>Non-MDT</th>
<th>MDT</th>
<th>$P$ value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patients</td>
<td>104</td>
<td>133</td>
<td>...</td>
</tr>
<tr>
<td>Wounds</td>
<td>148</td>
<td>188</td>
<td>...</td>
</tr>
<tr>
<td>Age, years</td>
<td>72.33 ± 11.98</td>
<td>72.43 ± 11.88</td>
<td>0.939</td>
</tr>
<tr>
<td>Male sex</td>
<td>99 (66.9)</td>
<td>138 (73.4)</td>
<td>0.222</td>
</tr>
<tr>
<td>Medical comorbidities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Smoking history$^a$</td>
<td>51 (39.5)</td>
<td>70 (40.5)</td>
<td>0.648</td>
</tr>
<tr>
<td>Current smoking$^a$</td>
<td>32 (24.8)</td>
<td>40 (23.1)</td>
<td>1.000</td>
</tr>
<tr>
<td>Diabetes type 1</td>
<td>20 (13.5)</td>
<td>23 (12.2)</td>
<td>0.745</td>
</tr>
<tr>
<td>Neuropathy$^a$</td>
<td>110 (82.1)</td>
<td>135 (84.9)</td>
<td>0.530</td>
</tr>
<tr>
<td>Baseline laboratory values</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GFR &lt;60 mL/min/1.73m$^2$</td>
<td>68 (46.6)</td>
<td>92 (49.2)</td>
<td>0.659</td>
</tr>
<tr>
<td>HbA$_{1c}$, mmol/mol</td>
<td>54 (44-64)</td>
<td>53 (45-65)</td>
<td>0.506</td>
</tr>
<tr>
<td>HbA$_{1c}$, %</td>
<td>7.1</td>
<td>7.0</td>
<td></td>
</tr>
<tr>
<td>Baseline medications</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Statin</td>
<td>102 (68.9)</td>
<td>127 (67.6)</td>
<td>0.814</td>
</tr>
<tr>
<td>Anticoagulation</td>
<td>44 (29.7)</td>
<td>67 (35.6)</td>
<td>0.293</td>
</tr>
<tr>
<td>Insulin</td>
<td>94 (63.5)</td>
<td>118 (62.8)</td>
<td>0.910</td>
</tr>
<tr>
<td>Vascular status</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TP of affected limb, mmHg</td>
<td>77.87 ± 36.39</td>
<td>92.94 ± 41.81</td>
<td>0.015</td>
</tr>
<tr>
<td>UT wound classification</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1A</td>
<td>17 (11.5)</td>
<td>33 (17.6)</td>
<td>0.126</td>
</tr>
<tr>
<td>3D</td>
<td>35 (23.6)</td>
<td>31 (16.5)</td>
<td>0.128</td>
</tr>
<tr>
<td>Healed ulcers</td>
<td>68 (45.9)</td>
<td>124 (66.0)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Total amputations</td>
<td>65 (43.9)</td>
<td>40 (21.3)</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>
Results

Time to perform major amputation:
MDT: median 152 days
Non-MDT: median 64 days

Log-rank: \( p = 0.05 \)
Results

Log-rank: \( p < 0.001 \)
Results

Time to wound healing:
- MDT: 57 days
- Non-MDT: 103 days

Log-rank: \( p < 0.001 \)
Results

Log rank: $P = 0.701$

Log rank: $P = 0.166$
## Results

### Predictors for major amputation

Table 2. Backward elimination cox regression analysis for predictors for major amputation.

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Unadjusted HR</th>
<th>95% CI</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>UT wound classification 3D</td>
<td>2.751</td>
<td>1.17-6.45</td>
<td>.020</td>
</tr>
<tr>
<td>non MDT group</td>
<td>3.724</td>
<td>1.25-11.08</td>
<td>.018</td>
</tr>
</tbody>
</table>

HR = Hazard ratio; CI = Confidence Interval; UT = University of Texas
Discussion

Strengths:
- Generalizable, neuro-ischemic wounds
- Comparison in the same hospital
- Recent study period

Limitations:
- Retrospective study: selection bias
- Follow-up limited to 1 year
Questions?
The effect of a multidisciplinary outpatient team approach on outcomes in diabetic foot care: a single center study

E. Huizing, M.A. Schreve, W. Kortmann, J.P.J. Bakker, J.P.P.M. de Vries, Ç. Ünlü