A SCORING TOOL TO PREDICT FUNCTIONAL OUTCOME IN LOWER LIMB AMPUTEES (BLARt) - A PILOT STUDY

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History

• Primary patient expectations too high
  – “you will be walking into clinic in 2 weeks”
  – “you will be up and dancing in 6 weeks”

• Rehabilitation MDT dealing with the fallout when expectations not matched
Consenting Patients

• No validated methods of predicting outcome prior to surgery

• Consent / Pre-operative advice is based largely on non-prosthetic clinicians’ opinions

• Patient expectations are often unrealistic, particularly with the elderly dysvascular patient
Can We Predict Outcome?

Our aim was to identify pre-operative factors that could predict the likelihood of successful prosthetic rehabilitation and mobility after lower limb amputation.
Clinical Use

• Informed consent based upon an objective assessment
• Completed by any clinician that doesn’t require specialist practitioner knowledge
• May affect what course of treatment patients decide
• Pre-operative use of tool could result in a higher level of primary amputation
Observational Study - 2009

- Eight year study looking at all patients who had an amputation within our area
- 31% Transfemoral and 74% Transtibial achieved functional mobility
Will They? Won’t They?

- For 80 patients we tried to predict their outcomes on initial contact.
- Use of knowledge gained from observational study / clinical judgement - purely subjective.
- 94% accurate prediction.
Development of BLARt

• Information from the creation dataset, previously published literature, clinical judgement and experience.

• Nine preoperative variables were identified as potentially impacting on the success of rehabilitation and having a significant impact on patient outcomes.

• A weighted scoring system was then assigned to these variables.
Sex
Male 0
Female 1

Age
<49 0
50-64 1
65-74 2
75-80 5
81+ 6

BMI
Average (18.5 – 25) 0
Above average (25-30) 1
Obese (>30) 3
Below average (<18.5) 2

Cause of amputation
Trauma 0
Congenital 0
Cancer 1
Orthopaedic 2
Vascular 3

Level of Amputation
Above / through knee 3
Below knee 1
Hip disarticulation 5
Bilateral 4-6

Pre-amp mobility
Wheelchair bound for 12 mths + 5
Wheelchair bound for < 12 mths 4
Indoor mobility only 3
Outdoor mobility with aids 2
Unaided outdoor mobility 1
Walking >3 miles 0

Special risks
CVA / Neurological 3
Renal problems 4
Respiratory problems 5
Contralateral limb issues 2-4
Recent MI / Angina 2

BLARt SCORE FOR AMPUTEE OUTCOMES

(Batchford Leicester Allman Russel tool)

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Total Score
Pilot Study

- 199 patients (101 from Leicester, 98 from Sheffield)
- BLARt score recorded at initial contact
- SIGAM outcome recorded at primary discharge
Plot of BLARt score against chances of achieving any functional mobility

Pearson correlation coefficient $R^2=0.86$, $p<0.001$
## Results of Pilot

<table>
<thead>
<tr>
<th></th>
<th>BLARt score</th>
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<tbody>
<tr>
<td></td>
<td>0-12 (n=57)</td>
</tr>
<tr>
<td>Full or partial functional rehabilitation (n=105)</td>
<td>54 (95%)</td>
</tr>
<tr>
<td>No rehabilitation (n=74)</td>
<td>2 (3%)</td>
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<tr>
<td>Death (n=20)</td>
<td>1 (2%)</td>
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Limitations

• Better at predicting poor outcome
  • Some factors not measurable (motivational/social)
  • Unpredictable post amputation factors (wound healing, post-op illness)

• Some who scored high did achieve functional rehab so not a prescriptive tool
Next Steps

• Pilot study in the process of being published
• Currently validating with proposed dataset of 1000 in centres across England

Leicester
Sheffield
Nottingham
Derby
Northampton

Luton
Crystal Palace
Charing X
Stanmore
Carlisle
Questions?

Thank you