Levels of evidence in foot and ankle surgery
Progress over the last decade?

By

Performed at the Royal National Orthopaedic Hospital, UK
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My disclosure is in the Final AOFAS Program Book.
I have no potential conflicts with this presentation.
Introduction

• The focus on evidence-based medicine has led to calls for increased levels of evidence in surgical journals.

• The purpose of the present study:
  – Review the levels of evidence in articles published in the foot and ankle literature.
  – Assess changes in the levels of evidence over a decade (2000-2010).
Materials and Methods

• Journals reviewed:
  – Foot and Ankle International
  – Foot and Ankle Surgery
  – JBJS A
  – JBJS B

• Years:
  – 2000 and 2010

• Exclusions:
  – Animal, Cadaveric, Basic science, Editorials, Surveys, Letters to Editor

• Articles:
  – Ranked by a five-point level of evidence scale
    • I (High level) – V (Low Level)
  – Ranked by type
    • Therapeutic, Prognostic, Diagnostic and Economic
Results:

• Volume of Articles
  – 466 Articles reviewed.
  – 379 articles met inclusion.
  – 155 from 2000 and 224 from 2010.

• Inter-observer reliability
  – Type of study, $\kappa = 0.696$ (P<0.01) showed good agreement.
  – Levels of evidence, $\kappa = 0.816$ (P<0.01) showed excellent agreement.

• Geographic Variation of Source of Article
  – USA and UK were the highest producer of articles.
  – Rest-of-world articles increased from 40.5% to 46.4% between 2000 and 2010.
Results

• Level of Evidence and Study Type
    • High level evidence (Levels I and II) increased from 5.2% to 10.3% (table 1, Fig 1).
    • Low level evidence (levels III, IV and V) decreased from 94.8% to 89.7% (table 1, Fig 1).
  – Change was not statistically significant (p=0.09).
  – The most frequent type of study was level IV, Therapeutic (Fig 2).
  – One economic study across two years (Fig 2).
  – The JBJS A produced the highest proportion of high-level evidence (Fig 3).
Results

Fig 1. Bar chart illustrating the levels of evidence in foot and ankle journals expressed as a percentage of the total number of articles assessed (blue=year 2000; and green=year 2010).

Table 1. Showing levels of evidence grouped into high (I+II) and low level (levels III, IV and V) by year of publication.

<table>
<thead>
<tr>
<th>Level of Evidence</th>
<th>2000</th>
<th>2010</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Level(I+II)</td>
<td>8 (5.2%)</td>
<td>23 (10.3%)</td>
<td>P=0.09</td>
</tr>
<tr>
<td>Low Level(III+IV+V)</td>
<td>147 (94.8%)</td>
<td>201 (89.7%)</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>N=155</td>
<td>N=224</td>
<td></td>
</tr>
</tbody>
</table>
Results

Fig 2. Bar chart illustrating the types of study in foot and ankle journals expressed as a percentage of the total number of articles assessed (blue=year 2000; and green=year 2010).

Fig 3. Bar Chart illustrating the percentage contribution of high level (blue) and low level (green) evidence to the journal’s articles.
Conclusion

• Over the last decade, there has been a trend towards higher levels of evidence in the foot and ankle literature, however, the differences did not reach statistical significance.
• The overwhelming majority of articles pertain to level IV and V evidence.
• Articles on health economics of foot and ankle surgery are almost nonexistent.
• USA and UK contribute the highest volume of articles to the literature, but the number of articles from the rest of the world is increasing.
• We recommend that foot and ankle journals consider making the publication of levels of evidence mandatory and that surgeons take responsibility to design higher quality studies. In addition, Governments need to prioritise this area for funding streams to encourage higher quality research.
References