Preoperative examination for arteriovenous access in hemodialysis: an insight into clinical practice guidelines

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Overview

- Arteriovenous fistulas (AVF) are the preferred vascular access for hemodialysis but have a high incidence of primary failure, particularly at the radiocephalic site¹
- Recent studies have shown routine preoperative vascular ultrasound in addition to clinical assessment improves the AVF patency rates ²
- Evidence based medicine (EBM) uses clinical research findings to aid the delivery of optimum clinical care to patients
- This study aims to assess the content and consistency of international clinical practice guidelines in terms of preoperative recommendations

Methods

- Guideline databases and nephrology societies websites were used to search for vascular access practice guidelines that included recommendations on pre-operative assessment (up to April 2014)
- Key guidelines (KDOQI, ERBP, CARI and CNS) were identified and compared using the Appraisal of Guidelines for Research Evaluation (AGREE) II instrument by three observers ³ (DC, AK, JA)
- All scores were calculated as scaled domain score and between group differences calculated using analysis of variance (ANOVA) and inter-rater reliability was assessed by intraclass correlation coefficient (ICC)

Results

- Overall, guideline recommendations for preoperative assessment include physical examination (4/4) with majority also recommending ultrasound for planning (3/4)
- Venography was recommended in suspected cases of central venous stenosis (2/4)
- The application of magnetic resonance angiography (MRA) and computed tomographic angiography (CTA) have been mentioned in suggestion to care (2/4)
- Guideline methodology rigour was variable between the guidelines (p<0.02). This may be due to different search strategies and different methods of updating guidelines
- Agreement was found between observers in overall ranking of the guidelines and inter rater reliability was found to be significant (ICC, p<0.005)

<table>
<thead>
<tr>
<th>AGREE II Domain</th>
<th>Section</th>
<th>ERBP</th>
<th>KDOQI</th>
<th>CNS</th>
<th>CARI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domain 1</td>
<td>Scope and purpose</td>
<td>61%</td>
<td>81%</td>
<td>69%</td>
<td>44%</td>
</tr>
<tr>
<td>Domain 2</td>
<td>Stakeholder Involvement</td>
<td>56%</td>
<td>70%</td>
<td>43%</td>
<td>11%</td>
</tr>
<tr>
<td>Domain 3</td>
<td>Rigor of Development</td>
<td>68%</td>
<td>76%</td>
<td>60%</td>
<td>55%</td>
</tr>
<tr>
<td>Domain 4</td>
<td>Clarity of Presentation</td>
<td>98%</td>
<td>81%</td>
<td>72%</td>
<td>81%</td>
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<tr>
<td>Domain 5</td>
<td>Applicability</td>
<td>40%</td>
<td>74%</td>
<td>11%</td>
<td>52%</td>
</tr>
<tr>
<td>Domain 6</td>
<td>Editorial Independence</td>
<td>39%</td>
<td>89%</td>
<td>42%</td>
<td>58%</td>
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<tr>
<td>Domain 7</td>
<td>Overall assessment</td>
<td>56%</td>
<td>72%</td>
<td>50%</td>
<td>50%</td>
</tr>
<tr>
<td>Overall</td>
<td>Guideline ranking</td>
<td>59%</td>
<td>78%</td>
<td>49%</td>
<td>50%</td>
</tr>
</tbody>
</table>

Table: Results for AGREE II as represented by average scaled domain (Sd) of each guideline where; Sd% = (obtained score-min possible score)/ (max possible score- min possible score)

Discussion

- Guidelines were shown to agree with high evidence based studies however there are limited RCT’s in VA
- Application of AGREE II instrument provided quantitative analysis between all guidelines
- Physical examination, ultrasound mapping and venography are the main methods available for preoperative assessment
- Further work will include a review of recent preoperative imaging studies with MRA or CTA in order to see if these modalities can offer additional information as compared to the conventional methods recommended in the guidelines

Acknowledgements