Impact of Radial Artery Harvest on Forearm Function and Symptoms: A Long Term Analysis from a Randomised Trial

Background / Aim

- The radial artery (RA) has gained popularity in the past two decades as a conduit for coronary surgery.
- It is being increasingly used as an alternative or in addition to the saphenous vein (SV).
- Despite this, there is a paucity of patient-centred analysis of long term quality of life after its removal.
- We therefore sort to characterise the effect of RA harvest on long term hand or forearm function and symptoms and to compare this against pre-operative results and with symptoms reported after SV removal.

Methods

- The study population was recruited from patients enrolled in RAPCO, a randomised trial investigating long term patencies of the RA compared with other conduits.
- Quality of life was assessed using a questionnaire:
  - 9 questions regarding hand or forearm function and symptoms
  - 2 questions on scar appearance and discomfort.
- Responses were graded in order of severity from 0 to 7, with >3 (mild concern) being regarded as a significant symptom.
- Mean response to each question for the RA group was compared with the non-RA group.
- Mean scores were compared with responses to the same questionnaire obtained pre-operatively.
- In those who had both RA and SV removal, we compared concern for forearm scar appearance and discomfort against that of a leg scar at 3 months and after long term follow up.

Results (1)

RA vs. SV Harvest

<table>
<thead>
<tr>
<th></th>
<th>RA (n=168)</th>
<th>SV (n=168)</th>
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<tbody>
<tr>
<td>Scar appearance</td>
<td>1.37 / 1.30</td>
<td>1.34 / 1.69</td>
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<td></td>
<td>(p=0.32)</td>
<td>(p&lt;0.001)</td>
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<tr>
<td>Scar discomfort</td>
<td>0.93 / 1.01</td>
<td>0.97 / 1.21</td>
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<tr>
<td></td>
<td>(p=0.18)</td>
<td>(p=0.002)</td>
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- At 3 months after surgery, patients reported significantly greater discomfort associated with the leg scar (p<0.001). Analysis of data (n=168) from the long term follow up questionnaire revealed a similar pattern of responses, with increased concern for leg discomfort (p=0.002) but not for appearance, indicating greater satisfaction with RA removal which is sustained in the long term.

RA vs. Non RA Group

- Mean scores ranged from 0.9 to 1.6 (where 1=no concern) and 92% to 99% of patients reported no significant hand or forearm symptoms.
- The most frequent concerns were those relating to pain and numbness (8% each).
- Scar appearance and discomfort had average scores of 0.95 and 0.93 respectively, suggesting satisfactory cosmosis and little impact on function.

- In comparison with the non-RA group, forearm pain and numbness scores (Qu. 2 & 3) were not significantly higher.

Pre-operative vs Long Term

- Symptom severity for the forearm was significantly lower in 7 out of 9 questions for pre-operative responses, indicating a general deterioration in function over long term follow up.

Conclusion

- RA harvesting is associated with high long term patient satisfaction and less scar discomfort than SV removal.
- Hand function declines over time and a small percentage of patients experience residual forearm pain and numbness, but this is not different from those without RA harvesting and may therefore be an ageing phenomenon unrelated to the effects of surgery.

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