Donor Site Morbidity After Minimally Invasive Anterior Iliac Crest Bone Graft Harvest

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Disclosure

No conflict to disclose

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Danielle Ponzio, MD

My disclosure is in the Final AOFAS Mobile App.

I have no potential conflicts with this presentation.
Purpose/Hypothesis

- Bone graft is frequently used to augment fusion in F&A procedures
- Iliac crest bone graft (ICBG) is the gold standard for autogenous bone graft
- High incidence of postop complications

Hypothesis:
- Minimally invasive ICBG harvest will result in a lower incidence of chronic pain, neuropathic pain, and sensory nerve deficits when compared to results reported in the literature.
Methods

- 38 patients
- Minimally invasive anterior iliac crest autograft harvest for F&A procedures
- >1 year follow-up
- Patient-reported questionnaire designed to assess prevalence of neuropathic pain, persistent pain, sensory nerve disturbance, overall satisfaction with donor site surgery.
- Responses compared to rates reported in the literature for open techniques.
Results

- Overall pain VAS (0-10) = 0.7
- Amongst patients with persistent pain, average VAS = 2.86, lower than reported in the literature (4.1).
- Compared to the rate of persistent pain in the literature (33.3%), we detected a statistically significant difference in our patients (18.4%).
- Neuropathic pain was experienced by 3 patients (7.9%) which was a statistically significant reduction compared to reports in the literature (21.5%).
- Sensory nerve disturbances were also lower compared to literature (5.3% vs. 18.2%).
## Results

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Minimally Invasive</th>
<th>Reported in the Literature</th>
<th>p-value</th>
<th>95%CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neuropathic Pain&lt;sup&gt;a&lt;/sup&gt;</td>
<td>7.9% (3/38)</td>
<td>21.5% (56/261)</td>
<td>0.025</td>
<td>0.022 - 0.25</td>
</tr>
<tr>
<td>Incidence of Persistent Pain</td>
<td>18.4% (7/38)</td>
<td>33.3% (29/87)</td>
<td>0.048</td>
<td>0.002 - 0.291</td>
</tr>
<tr>
<td>Numeric Pain Rating Scale&lt;sup&gt;b&lt;/sup&gt;</td>
<td>2.86 (S.D. 1.68)</td>
<td>4.1</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Sensory Nerve Deficit&lt;sup&gt;c&lt;/sup&gt;</td>
<td>5.3% (2/38)</td>
<td>18.2% (2/11)</td>
<td>0.088</td>
<td>-0.027 - 0.281</td>
</tr>
</tbody>
</table>

<sup>a</sup> Neuropathic pain diagnosis was derived from the validated DN4 (Douleur Neuropathique 4) survey, >90% sensitivity

<sup>b</sup> Average score among only patients experiencing pain

<sup>c</sup> Sensory nerve deficits were determined by burning, numbness, or tingling in the distribution of the lateral femoral cutaneous nerve

<sup>1</sup> A one-sided Z-test for proportions was utilized to detect statistical significance
Conclusions

- Minimally invasive ICBG harvest has a superior risk profile compared to that of traditional open procedures.
- Patients experienced less pain overall, a lower incidence of neuropathic pain, and less sensory disturbances.
- When cancellous autograft is needed for orthopaedic procedures, consideration should be given to minimally invasive harvesting techniques given its lower morbidity compared to traditional open techniques.
References


Thank You