The Use of PRP and Wound Healing Complications After Total Ankle Arthroplasty

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The disclosure for all of the authors is listed in the Final AOFAS Program Book.

None of the authors have any potential conflicts with this presentation.
Introduction

- An abundance of data exists promoting the benefits of PRP in a variety of clinical scenarios
- There is a paucity of high level studies on the use of PRP for wound healing
  - Few large studies exist in the foot and ankle literature
  - Available data is conflicting in its efficacy
- Recent cardiothoracic literature suggests an intraoperative role for PRP in reduction of wound-healing complications
- Wound healing complications after total ankle arthroplasty have been well established in the literature
- Given the potential benefit of PRP as a wound healing adjunct, we aimed to determine its efficacy to reduce wound healing complications when applied intraoperatively during total ankle arthroplasty
Study Design

- Retrospective chart review
- 133 consecutive total ankle arthroplasties
  - 78 patients had wounds sprayed with PRP
  - 55 patients had wounds closed without PRP augmentation
  - Decision for PRP application based on availability and approval by insurance
- The same PRP methodology was utilized in all patients
  - Symphony II® (Harvest Technologies®)
  - 55-60cc of blood centrifuged for 15 minutes with citrate anticoagulant
  - Platelets concentrate to 4-7X baseline serum concentration
  - PRP is white cell rich (of which 75% are mononucleocytes)
  - The blood was spun down until 7cc of PRP was obtained
- No statistical differences in baseline patient characteristics between groups
Post-operative office notes were reviewed

- A delay in wound healing was defined as the inability to remove sutures at the standard 2-week post-operative visit

Complications

- None: normal suture removal without further wound management
- Minor: wounds that were treated and responded to local wound care
- Major: any wound complication requiring a return to the operating room

Fisher Exact test to correct for other independent variables and look solely at PRP and its effect on wound healing

p-value of <0.05 was considered to be statistically significant
Results

- **None vs Minor wound complications**
  - 85 patients (69.7%) had no wound complications
    - 47 received PRP
  - 37 patients (30.3%) required prolonged in-office treatment
    - 23 received PRP

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<tr>
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<th>None</th>
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<tr>
<td>n</td>
<td>85</td>
<td>37</td>
</tr>
<tr>
<td>PRP: yes</td>
<td>47 (55%)</td>
<td>23 (62%)</td>
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<tr>
<td>PRP: no</td>
<td>38 (45%)</td>
<td>14 (38%)</td>
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No significant difference in incidence of wound complications in those receiving PRP and those not receiving PRP

p=0.8457; OR=1.09; CI=0.47-2.61
Results

None/Minor vs Major Wound Complications

- 122 patients (91.7%) had either none or minor complications
  - 70 received PRP
- 11 patients (8.3%) required a return to the operating room
  - 8 received PRP

<table>
<thead>
<tr>
<th>None/Minor</th>
<th>Major</th>
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<tr>
<td>n=122</td>
<td>n=11</td>
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<tr>
<td>PRP: yes (n=70;57%)</td>
<td>PRP: yes (n=8;73%)</td>
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<tr>
<td>no (n=52;43%)</td>
<td>no (n=3;27%)</td>
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No significant difference in incidence of wound complications in those receiving PRP and those not receiving PRP

p=0.5244; OR=1.97; CI=0.45-12.09
Discussion

- Mixed results in the literature regarding efficacy of PRP in wound healing
- Many studies use different preparations of PRP
- Few studies have standardized patients to receive a single preparation of PRP

Strengths of our study
- Single surgeon
- Standardized PRP concentration
- Consecutive patients utilized
- Large number of patients
Conclusion

- Wound healing complications are common following total ankle arthroplasty
- PRP failed to afford protection
  - Against delayed wound healing
  - Against further operative interventions to address wound-healing complications
- PRP is no longer routinely used at our institution when performing total ankle arthroplasty
References


