Does Site Selection Make a Difference in Pain Outcome After Autologous Bone Graft Harvest?

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Introduction
Acute and chronic pain have been reported as common complications after autograft harvest. In foot and ankle surgery, there are multiple sites used for autologous bone graft, including the proximal or distal tibia, calcaneus, and iliac crest. There has been no comparison between these anatomic areas and the potential for acute or chronic pain. The purpose of this study was to prospectively compare patient reported outcomes of acute and chronic pain to determine if harvest site selection makes a difference.

Methods
As part of a prospective randomized clinical trial examining ankle and hindfoot fusion rates with autograft compared to synthetic bone graft, the autologous bone graft harvest sites were assessed with visual analog pain outcome scores (VAS) at 3, 24, 36 and 52 weeks after surgery and patients with a score of at least 20 were designated as clinically significant pain. Four specific common harvest sites were compared: iliac crest, proximal tibia, distal tibia and calcaneus. Fisher’s exact test was used to compare the proportion of patients with significant graft harvest site pain between anatomic locations and at the various time points.

Results
130 patients underwent autogous bone grafting (17 iliac crest; 24 distal tibia; 69 proximal tibia; 20 calcaneus). Almost all patients (95.6%) noted some degree of pain associated with the autologous harvest site. Specific % of pain at weeks 3, 24, 36, 52 are listed in Table 1. Approximately one in ten patients experienced significant pain after bone graft harvest and nearly one in six suffered from chronic donor site pain. Overall, 12% of subjects reported clinically significant pain at 24 weeks and 8.5% at 52 weeks post-operatively. Each lower extremity harvest site (calcaneus, proximal and distal tibia) showed higher rates of clinically significant graft harvest site pain than the iliac crest at 52 weeks.

Conclusion
At one year from surgery, 8.5% of patients who underwent autologous bone graft harvest had significant pain (>/= 20mm on VAS). Of the lower extremity bone graft sites, the calcaneus has the highest percentage of persistent pain at 52 weeks followed by the distal tibia, and proximal tibia respectively. Although the iliac crest had the highest percentage of acute pain at 3 weeks, it had the lowest percentage of clinically significant pain at 52 weeks.