Variables associated with Post-operative Dysfunction and Impaired Quality of Life in Patients with a Non-union or Bone Defect

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The purpose of this study was to examine variables associated with level of function and quality of life in patients who underwent a bone grafting procedure for a long bone non-union or bone defect. METHODS:

This study is an analysis of data from a multi-centre, randomized trial. Patients with a long bone non-union or bone defect were randomized to receive either autogenous iliac crest bone or Reamer Irrigator Aspirator (RIA) autograft. The primary outcome was the Short Musculoskeletal Function Assessment (SMFA) at 12 months. The SF-12 PCS and MCS scores were also analyzed. A univariable regression analysis was conducted between all a priori specified covariates and the SMFA function scores and SF-12 PCS and MCS scores at one-year post grafting procedure. Variables with a p-value of < 0.3 were then entered into the multiple linear regression model.

RESULTS:

104 patients were enrolled in the trial and 83 had completed the one-year assessment and were included. At one-year 68% of the patients in the trial had achieved union (56/82). Non-union at one year (estimate = 8.3, 95% CI = 0.90 to 15.8), pre-operative opioid use (estimate = 8.6, 95% CI = 0.19 - 16.8), longer time from injury to baseline assessment (IQR estimate = 4.4, 95% CI = 1.2 to 7.5) and worse baseline functional scores (IQR estimate = 25.2, 95% CI = 6.6 to 18.5) were associated with worse function at one-year on the basis of SMFA scores (higher score indicates worse function). Non-union at one year (estimate = -4.4, 95% CI = -8.6 to -0.3), longer time from injury to baseline assessment (IQR estimate = -2.2, 95% CI = -3.9 to -0.5) and worse baseline MCS scores (IQR estimate = 9.1, 95% CI = -5.8 to 12.4) were all associated with worse MCS scores at one-year (lower scores indicate worse quality of life). DISCUSSION AND CONCLUSION:

Patients who had worse baseline scores, a longer time from original injury to treatment and those with a persistent nonunion at one-year had worse functional and mental health scores at one-year. The method of surgical treatment and type of bone graft were not associated with patient reported functional outcomes at 12 months post procedure.