



Cost Benefit of Vitamin C After Distal Radius Fracture

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Introduction

The American Academy of Orthopaedic Surgeons (AAOS) recommends adjuvant treatment of distal radius fractures with Vitamin C for the prevention of disproportionate pain.¹ Controversy exists over whether Vitamin C has a significant effect on complex regional pain syndrome (CRPS) after distal radius fractures, but its side effect profile is favorable.^{2,3} Multiple studies suggest efficacy in pain reduction and reducing the incidence of CRPS.⁴⁻⁸ Our aim is to demonstrate a cost benefit of utilizing Vitamin C in the prevention of CRPS after an inciting injury.

Methods

A comparative cost analysis was conducted by extracting outcome data from three studies in a recent meta-analysis and calculating the number needed to treat (NNT). Cost was derived from the Military Health System medication pricing compared to healthcare costs in the first year of CRPS.

Results

A total of 577 patients were included in the analysis. The risk ratio (RR) for developing CRPS in the treatment group was 0.54 [95%CI 0.33, 0.91] and the NNT was 16.42 (17). A 50-day course of Vitamin C costs \$0.635, and one 100-tab bottle costs \$3.10; the NNT cost was \$10.80 with the practical cost of treatment being \$52.70. The annual median direct medical cost at one year after CRPS diagnosis was \$4,845⁹.

Cost of Vitamin C versus CRPS treatment

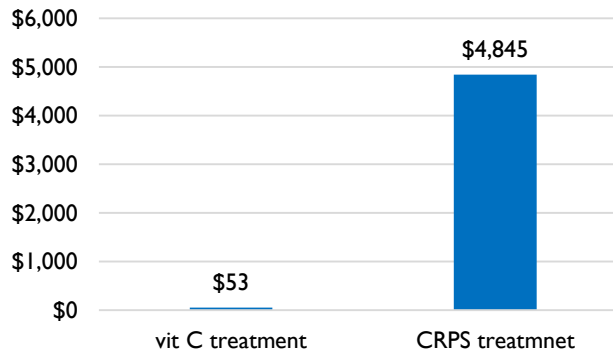


Figure 1. Cost of Vitamin C treatment versus CRPS treatment

Discussion and Conclusion

Complex regional pain syndrome can be debilitating and costly.⁹ Fractures appear to be a risk factor for developing CRPS. Vitamin C has been shown to be protective against the development of CRPS after distal radius fractures, but a minority of providers follow AAOS clinical practice guidelines.^{1,12} Current treatment options often yield unsatisfactory results, frustrating both patients and providers.^{10,11} Annual median direct healthcare costs one year post diagnosis are \$4,845 but are roughly doubled in the year prior to diagnosis.⁹ We demonstrated significant cost savings by spending approximately one percent of the current CRPS inpatient and outpatient treatment cost on post-injury prophylaxis.

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