

Outcomes of Exogen low-intensity pulsed ultrasound in the management of delayed union following elective foot and ankle surgery

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Introduction/Purpose: Exogen low-intensity pulsed ultrasound therapy is well established in the management of fracture delayed or non-union. Its use in trauma has recently been recommended by the National Institute for Clinical Excellence in England. In comparison the use of Exogen for managing delayed union following elective foot and ankle surgery has not previously been reported in the literature.

We aim to review the indications for and outcomes following Exogen therapy for managing delayed union following elective foot and ankle surgery in our English tertiary referral centre.

Methods: Case notes and imaging were reviewed for all patients receiving Exogen therapy following elective foot and ankle surgery from July 2012 - July 2017 in our centre. Data were collected on patient demographics, smoking status, comorbidities, indications for and type of surgery performed, duration of Exogen therapy and final outcomes. Union was confirmed radiologically and clinically.

Results: 58 patients were included, 18 smokers and 8 diabetic. The mean age was 55 years. 50 underwent an arthrodesis, 8 an osteotomy. Exogen was started a mean of 244-days post-operatively.

24 patients went on to complete union; a further 7 were showing good progress towards union. When grouped together the union rate was 53.4% (n=31). Complete union took a mean of 177-days (range 44–441).

The non-union rate was 46.6% (n=27) despite a mean of 330-days treatment (range 72–1112). 1 was complicated by infection.

There were no significant differences in age, time to commencing Exogen, number of smokers or diabetics between the groups.

The non-union group had significantly longer treatment (p=0.003). Union was more likely following an osteotomy (n=6/8,75%) or surgery to the hindfoot (n=6/7,86%).

Conclusion: We have found Exogen can be beneficial in managing delayed union following elective foot and ankle surgery for over half of patients. This can potentially reduce the number of revision surgeries required. We found no correlation between patient age, smoking or diabetes in outcome. Union was more likely following a corrective osteotomy or surgery to the hindfoot. This data can help inform clinicians in their decision-making and in counselling patients.

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