Gait Analysis of Orthotic Intervention for Ankle OA – a Case Study

Robert Meier, CO, BOCO, Ken Cornell, CO

Introduction:

Ankle OA affects 1% of the world adult population and the incidence is seen as increasing. Volumes of literature exist addressing orthotic intervention of knee osteoarthritis, but there is very little in literature addressing orthotic intervention of ankle osteoarthritis. A Med-line search “Ankle OA” resulted in only 198 references (only one of which addressed orthotic intervention for ankle OA), while “Knee OA” produced 5,736 references. Traditional intervention involves minimizing motion with a gauntlet or solid ankle AFO. Due to the fact that muscle atrophy is already linked to ankle OA, and immobilization is concussively proven to lead to disuse atrophy, and alternative management method was sought for these patients. A hypothesis was formed that relieving stress and limiting motion without immobilization might produce better functional outcomes.

Methods:

In this case study, gait data were acquired utilizing a BTS G-Walk on a patient with the diagnosis of severe unilateral (LT) ankle osteoarthritis. The patient presented wearing a gauntlet style AFO for over 6 years with 6/10 pain during ambulation. Three data sessions were acquired at intake; no orthosis, SAFO, and Blue Rocker with custom foot orthosis. A fourth data session was acquired 7 weeks post intervention with the Blue Rocker.

Results:

Using no orthotic intervention as the baseline, the SAFO showed significant improvement in gait parameters although the patient reported no significant reduction in pain during gait. On 7 week follow-up, the data showed a significant improvement in gait parameters vs. initial Blue Rocker data and patient reported a reduction in pain to 2/10 during gait that allowed greater distance and time capacity during gait.

Discussion:

No data could be found in literature to support the concept of utilizing immobilization for the management of ankle OA. This single patient trial adds credence to the concept that a controlled stress orthotic environment may help improve gait parameters and reduce pain associated with ankle OA as compared to more immobilizing orthotic devices.

Conclusions:

While the outcomes of this case study are promising, additional research is needed to validate these data and functional outcomes with a statistically significant patient cohort.

References:

Lübbecke et al, Int Orthop. 2012