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CADTH RAPID RESPONSE REPORT: SUMMARY OF ABSTRACTS

Orthotic Walking Boots for Adults with Fractures and Ligament Injuries: Clinical and Cost-Effectiveness

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Acknowledgments:

About CADTH: CADTH is an independent, not-for-profit organization responsible for providing Canada's health care decision-makers with objective evidence to help make informed decisions about the optimal use of drugs, medical devices, diagnostics, and procedures in our health care system.

Research Questions

1. What is the clinical effectiveness of orthotic walking boots for adult patients with fractures or ligament injuries?
2. What is the cost-effectiveness of orthotic walking boots for adult patients with fractures or ligament injuries?

Key Findings

One systematic review and one non randomized study were identified regarding orthotic walking boots for adults with fractures and ligament injuries.

Methods

A limited literature search was conducted on key resources including PubMed, Medline, The Cochrane Library, University of York Centre for Reviews and Dissemination (CRD) databases, Canadian and major international health technology agencies, as well as a focused Internet search. No filters were applied to limit the retrieval by study type. Where possible, retrieval was limited to the human population. The search was also limited to English language documents published between January 1, 2012 and June 7, 2017. Internet links were provided, where available.

Selection Criteria

One reviewer screened citations and selected studies based on the inclusion criteria presented in Table 1.

Table 1: Selection Criteria

Population	Adults with ankle, tibia, or fibula fractures or ligament injuries
Intervention	Removable orthotic walking boots
Comparator	Non-removable casts or casting
Outcomes	Q1: Clinical effectiveness, harms Q2: Cost-effectiveness outcomes
Study Designs	Health technology assessments, systematic reviews, meta-analyses, randomized controlled trials, non-randomized studies, economic evaluations

Results

Rapid Response reports are organized so that the higher quality evidence is presented first. Therefore, health technology assessment reports, systematic reviews, and meta-analyses are presented first. These are followed by randomized controlled trials, non-randomized studies, and economic evaluations.

One systematic review and one non randomized study were identified regarding orthotic walking boots for adults with fractures and ligament injuries. No relevant health technology assessments, randomized controlled trials, or economic evaluations were identified.

Additional references of potential interest are provided in the appendix.

Overall Summary of Findings

One systematic review[1] was identified regarding orthotic walking boots for adults with fractures and ligament injuries. Two studies were included in the review, one that compared cast immobilization with Aircast, and one which compared cast immobilization and pneumatic braces. In one study, no between-group differences were found in activity limitation and ankle dorsiflexion at a six month follow-up. However, in another study, statistically significant differences in activity limitation and pain were identified at six weeks, with the pneumatic brace having the more favourable outcomes. This difference was not present at one year follow-up.

The identified non-randomized study[2] compared walking boots with a short-leg cast for pain, functionality, and time off work outcomes after fractures of the fifth metatarsal. Walking boots had a lower mean time to return to pre-injury pain (nine weeks versus 12 weeks), lower reports of pain (at six weeks, nine weeks, and 12 weeks), and a shorter time to return to work (31.5 days versus 39.2 days) when compared with the cast. Walking boots additionally had shorter return-to-drive times, and better functionality scores at six weeks and nine weeks, but not 12 weeks.

References Summarized

Health Technology Assessments

No literature identified.

Systematic Reviews and Meta-analyses

1. Lin CW, Donkers NA, Refshauge KM, Beckenkamp PR, Khera K, Moseley AM. Rehabilitation for ankle fractures in adults. Cochrane Database Syst Rev [Internet]. 2012 Nov 14 [cited 2017 Jun 15];11:CD005595. Available from: http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD005595.pub3/epdf/standard
See: Cast versus other immobilisation (sub-category 2)

Randomized Controlled Trials

No literature identified.

Non-Randomized Studies

2. Shahid MK, Punwar S, Boulind C, Bannister G. Aircast walking boot and below-knee walking cast for avulsion fractures of the base of the fifth metatarsal: a comparative cohort study. Foot Ankle Int. 2013 Jan;34(1):75-9. PubMed: PM23386764

Economic Evaluations

No literature identified.

Appendix — Further Information

Systematic Reviews – Alternate Population

3. Yeung DE, Jia X, Miller CA, Barker SL. Interventions for treating ankle fractures in children. Cochrane Database Syst Rev. 2016 Apr 1;4:CD010836, 2016 Apr 01. PubMed: PM27033333

Non-Randomized Studies – Alternate Comparator

4. Gunay S, Karaduman A, Ozturk BB. Effects of Aircast brace and elastic bandage on physical performance of athletes after ankle injuries. Acta Orthop Traumatol Turc. 2014;48(1):10-6. PubMed: PM24643094

5. Prado MP, Mendes AA, Amodio DT, Camanho GL, Smyth NA, Fernandes TD. A comparative, prospective, and randomized study of two conservative treatment protocols for first-episode lateral ankle ligament injuries. Foot Ankle Int. 2014 Mar;35(3):201-6. PubMed: PM24419825

Review Articles

6. Bica D, Sprouse RA, Armen J. Diagnosis and Management of Common Foot Fractures. Am Fam Physician. 2016 Feb 1;93(3):183-91. PubMed: PM26926612

7. Drakos MC, Murphy CI. Bracing versus casting in ankle fractures. Phys Sportsmed. 2014 Nov;42(4):60-70. PubMed: PM25419889

8. Thakeray AJ, Taylor J. Immobilisation of stable ankle fractures [Internet]. BestBETs: Manchester (GB); 2013 [cited 2017 Jun 15]. Available from: http://bestbets.org/bets/bet.php?id=738 .