Interventions for Congenital Clubfoot in Pediatrics

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Introduction/Background

• Congenital talipes equinovarus (CTEV) known as “clubfoot”
  – developmental disorder of the lower limb
  – Dislocated NTC joint
  – Fixation of foot in adduction, supination and varus
Background - Conservative treatment methods:

**Ponsetti**

- Most practiced treatment
- 6-8 weeks of long leg plaster casts (toe to groin) with gentle manipulation around the talar head
- Achilles release as needed
- Post-treatment AFO’s
- Significantly reduce the need for major foot surgery
Background - Conservative treatment methods:

• Kite Techniques
  • Three point pressure principal
  • forefoot abd, calcaneocuboid add, calcaneus valgus
  • Casting in position and dorsiflexion
  • 20.4 casts required on average
Background - Conservative treatment methods:

- The French Method
  - PT manipulation
  - Stimulate foot muscles
  - Adhesive straps applied in position
  - Daily – first 2 months
  - 3x/week – next 6 months
  - Night splint for 2-3 years when ambulatory
Background - Surgical treatment methods:

- Usually in conjunction with conservative care
- Always in conjunction with post surgery casting
- Attempt to set bones and ligaments into appropriate position for current age
- Optimal age controversial
PICO Question

In pediatric patients with congenital clubfoot, does casting, bracing, and exercise have better outcomes than surgical interventions in improving or maintaining lower extremity function?

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1571059
Methods

• Databases:
  – NCBI, EBSCO Host

• Terms Searched:
  – Idiopathic, Clubfoot, pediatric care, Conservative Care, Surgical Management, Comparative

• Articles Found:
  – 15 found
  – dismissed 5 title review
  – dismissed 4 abstract review
Research Synthesized

• Unused Articles
  – relevance, outdated (last 10 years), poor methods, level of evidence

• Article Types
  – Meta-Analysis, Systematic Review, Case Study, Retrospective Review

• Final Article types and Level
  – 2 Meta-Analyses, 1 case study, 1 retrospective, 2 Literary Reviews
Results

- Kite – 90-19% successful
  - Results non-reproducible
- French – 50-60% successful
  - Good results, but time in-efficient
- Ponseti – 70% successful
  - Surgical and Conservative considerations
  - Efficient use of time
- Surgeries – 35% successful
  - Can help conservative care (Ponseti)
  - Has overall Poor Outcomes
Discussion

• **Kite-**
  – Reports tend to be unreliable and variable in studies

• **The French Method-**
  – Very time consuming, poor reimbursement, & use of many resources
  – Good results, wholistic approach

• **Ponseti-**
  – most inclusive, best reproducible results

• **Surgical Management**
  – may still be required in addition to but not instead of conservative care for good results

• **AFO’s are crucial to success on all levels** not endorsed by AFO companies
Areas for Future Research

• Compare long term outcomes between treatments
• Lifetime Cost
• Growing Casts
• When Surgery should be performed
  – esp. after skeletal maturity
References


