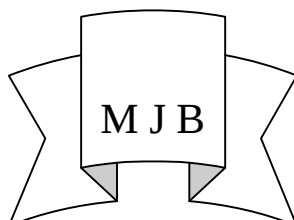


Evaluation of ponseti method in treatment of congenital idiopathic clubfoot

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Abstract

Idiopathic congenital talipes equinovarus is the most common deformity of the foot. we report our initial experience in using ponseti method for conservative treatment of club foot .we studied 42 patients with 62 club feet from July 2002-to-december 2006-in orthopaedic clinic in Al-Hilla teaching hospital and in private clinic, age from 1st day to 10 months ,by serial correction and casting (2-8 times, for 7-10 days in each times).tendoachilles tenotomy is used in 6 cases only(with local or general anesthesia),with follow up after treatment for one year, four patients(6feet were lost from follow up) . we achieve 82% success rate, failure of correction is mainly related to poor compliance of the patients to the cast , late presentation of the patient to the orthopaedic clinic, and the severity of deformity is the third cause. Complications are only 5 cases including, fore foot swelling, cast slippage and skin necrosis, all complications are treated. We think that ponseti method is a safe and effective treatment for congenital idiopathic club foot and decreases the need for extensive surgical correction.

تقويم طريقة بونسيتي في علاج تشوه القدم الولادي

الخلاصة

تشوه القدم الولادي هو احد التشوهات الشائعة أجريت دراسة النتائج الأولية لطريقة بونسيتي في العلاج التحفظي لتشوه القدم الولادي ،حيث تمت دراسة اثنان وأربعون مريض لـ اثنان وستون قدم مشوهة للفترة من تموز ٢٠٠٢/كانون الأول/٢٠٠٦ للأعمار من اليوم الأول ولغاية الشهر العاشر بواسطة التعديل والبناء التدريجي (٢-٨ مرات، ولمدة ٧-١٠ أيام لكل مرة) مع تطويل الوتر الاكليلي لسنة حالات (بالتخدير الموضعي أو العام)،وكانت متابعة الحالات بعد العلاج لمدة سنة واحدة (فقدت أربعة حالات (سنة أقدام) من المتابعة).

كانت نسبة النجاح ٨٢% أسباب الحالات التي فشل فيها العلاج يعود فيها إلى عدم تقبل البناء بالجبس. والسبب الآخر هو مراجعة عيادة جراحة العظام بصورة متأخرة من حيث العمر، والسبب الأخير له علاقة بشدة التشوه.

هنالك خمسة حالات حدثت فيها مضاعفات والتي شملت تورم مقدمة القدم، فشل في البناء بالجبس، وإضرار جلدية.تم تجاوز هذه المضاعفات وأكمل علاجهم بنجاح.

نستنتج من هذه الدراسة إن طريقة بونسيتي هي طريقة امينة وفعالة في علاج تشوه القدم الولادي وتقلل الحاجة إلى إجراء تدخل جراحي معقد.

Introduction:

Idiopathic congenital talipes equinovarus is a complex deformity that is difficult to correct (1`2`3`4) .It is one of the most common congenital deformities. The ratio of the male to female is 3:1, and 40% of cases are bilateral(5). The incidence of club foot in Caucasian newborns worldwide is approximately one in 1000 births, in USA is one in 500 births .Club foot is less common in Japanese and more common in African blacks(6). Precise cause of idiopathic club foot is unknown, it seems to be a developmental defect during the second trimester of pregnancy, with prenatal ultrasonography, the earliest that club foot is at 12weeks gestation. Club foot can be transmitted genetically (5`7). The goal of treatment is to correct all components of the deformity so that the patient has a pain free, plantigrade foot with good mobility, without calluses, and without the need to wear special modified shoes.

Material and Method:

We reviewed the records of 42 patients with 62 congenital idiopathic clubfeet treated by conservative treatment using Ponseti method from July 2002- to December 2006, in orthopaedic clinic in al-Hilla teaching hospital and in private clinic, four patients,(6feet) were lost from follow up.

Ponseti method in treatment of club foot ;(4)

The guidelines for treatment as following:

1-All components of deformity are corrected simultaneously not in

sequence, except for equinus, which should be corrected last.

2-The cavus which results from pronation of the fore foot in relation to the hind foot, is together corrected with the adduction by supination and abduction of the fore foot in proper alignment with hind foot.

3-With the longitudinal arch of the foot well molded and the fore foot in some supination, the entire foot can be abducted gently and gradually under the talus, which is secured against the lateral aspect of the head of talus.

4-Heel varus will correct when the entire foot is fully abducted under the talus, the heel is never touched.

5-Correction of equinus by dorsiflexing the foot by simple percutaneous tendoachilles tenotomy under local or general anesthesia.

Manipulation as described by ponseti (2):

The thumb is positioned over the lateral aspect of the talus, and the index finger is positioned behind the lateral malleolus, no counter pressure should be applied at the calcaneocuboid joint. The cavus and the adduction are corrected by slight supination and abduction of the forefoot, the forefoot is never pronated.

To maintain correction, a plaster cast is applied in 2 sections, the first extends from the toes to below knee, and second(if need) covers the knee and thigh, knee at right angle, abduction of the foot is increased progressively with each manipulation and plaster cast application until hypercorrection. After correction, a maintenance braces are used for one year.

Results:

We have treated 42 patients with 62 idiopathic club feet deformities (20 patients are bilateral) using ponseti method of management. 28 patients (41 feet) were male and 14 patients (21 feet) were female (figure-1). all patients are below the age of 10 months (from first day –to 10 months) with mean of 2 months. the numbers of casts range from 2-8 with average of 5, we kept the patient in cast for 7-10 days in each time. patients had primarily below knee casts (48 feet, 85.7%) and (8 feet, 14.3%) both below then above knee casts. percutaneous tendoachilles tenotomy is used in 6 cases only.

We achieve full correction in 46 feet (82.1%) and failure in 7 patient, 10 feet (17.9%), 3 patients (5 feet) of them are of sever type of deformity, all 7 cases are after the age of 7 months at time of presentation, and all these cases are treated by surgical correction.

. 5 feet (8.9%) had cast complications including swelling of fore foot (2 cases), slippage of the cast (2 cases) and skin necrosis, anterior to lateral malleolus (1 case) (figure-2-), all these 5 cases with complications are treated and correction were achieved successfully.

Discussion:

In This study we demonstrates that male to female ratio about 2/1 which is differ from that of other studies (10), but its similar in bilaterality (10). With the use of the ponseti method, more than 82 % of patient with idiopathic clubfoot can be corrected without the need for extensive corrective surgery. while in many other studies success rate between 92%-97% (2,12,13,14,15) We think that this

discrepancy in the results of our treatment is attributable primarily to poor compliance of the patients (and their parents) to the casting and bracing (1,11,16,17,18,) . specially when casting become more frequent (more than 5 times). The second possible cause of the low success rate is related to the late presentation of the child to the orthopaedic clinic and this related to poor health education of the families in developing countries (most failure rate in older age group in our study). Finally the complication is rare and treatable, like most of similar studies (12, 13, 14, 15) which means that ponseti method in treatment of club foot is safe and effective method specially if it started early and treated in a corrected way, to reduce the need of extensive soft tissue surgery.

CONCLUSION:

The ponseti method is a safe and effective treatment for congenital idiopathic club foot and radically decreases the need

For extensive surgery, and this should encourage all efforts to make this method the golden standard in the treatment of congenital idiopathic clubfoot. Orthopedist who adopts the ponseti method will feel rewarded by the satisfaction of successfully correction of the deformity.

. Non-compliance with orthotics has been widely reported to be the main factor causing failure of the technique. in addition to that, severity of the deformity and the late presentation also decreases the failure rate.

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	patients	Unilat.	Bilat.	feet
male	28	15	13	41
female	14	7	7	21
total	42	22	20	62

Figure-1- male and female incidence.

complications	swelling	Pop. slippage	Skin necrosis
No. of cases	2	2	1

Figure-2- complications.