

Ponseti Technique is the Best Option for the Treatment of Idiopathic Congenital Club Foot by the Age of Two Years

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Abstract

Club foot is the commonest congenital deformity in babies. Around 80% of the cases occur in developing nations. There are many option for treating club foot, Ponseti technique is one of them. This prospective interventional study was carried out at the Department of Orthopaedic & Traumatology, Rangpur Medical College Hospital, over period of 3 year from 22/09/2011 to 22/12/2014. One hundred and Fifty patients of two hundrads and twenty three foets were treated by ponseti technique and followed up for the purpose of this study. Both rigid and non rigid variety of club foot were treated irrespective of sex and side of foot involvement. Pirani scoring system was used to assess the severity of deformity, needs of tenotomy and evaluation of result. All the patients were treated by Ponseti technique, only 83 (11.1%) foot by plaster, 140 (88.9%) foot required tenotomy. There were complication of 29 (13%) foot of 19 patients in the form of plaster sore. All patients were under bracing protocol. In this study it is found that 94.61% satisfactory result. So Ponseti technique is a safe, effective & low cost and easily acceptable. So it is the best option for the treatment of idiopathic congenital club foot under the age of two years.

Key words : Idopathic congenital club foot; Ponseti technique; Pirani scoring system; Plaster sore.

INTRODUCTION

Club foot is the commonest congenital deformity in babies. More than 100,000 babies are born worldwide each year with congenital club foot. Around 80% of the cases occur in developing nations¹⁻³. Club foot is a complex deformity in which the foot is completely turned inward at birth. Idiopathic club foot occurs worldwide with an incidence varying from 0.39 to 8 per 1000 live births .It is the seventh amongst common congenital defect and the first for the musculoskeletal system. There are many option for treating club foot, Ponseti technique is one of them³⁻⁶.

The Ponseti technique involves gentle staged correction of the deformities of club foot. Weekly manipulations are performed and the foot is cast in plaster of paris at the maximum correction at the end of every manipulation. The cast is removed before the next manipulation and the correction is slowly increased. In many cases full correction is aided by percutaneously tenotomy prior to the application of the last cast. Once full correction of the club foot has been achieved, the patient is given a Denis Browne splint to maintain the correction⁷. This must be worn full time for the first three months and thereafter at night up to the age of four years.

MATERIALS & METHODS

The present prospective interventional study was carried out at the Department of Orthopaedic & Traumatology, Rangpur Medical College Hospital, over period of 2 years from 22/09/2011 to 22/12/2013 to evaluate the result of treatment of idiopathic congenital club foot by Ponseti technique under the age two years. Patients of idiopathic congenital club foot attended at Rangpur Medical College Hospital were the study population. A total of 150 patients of 223 foot (Both rigid and non-rigid variety, unilateral or bilateral) under the age of 2 years irrespective of sex, were included in the study. Patients with other congenital deformity, relapsed club foot, neglected club foot and age above 2 years and drop out cases also were excluded from the study.

RESULTS

Table 1 : Distribution of patients by sex.

Sex	No of patients	Percent
Male	98	64.7
Female	42	34.3
Total	150	100.0

Table 2 : Distribution of the patients by involvement of foot.

Involvement of foot	No. of foot involved	Percent
Right	43	28.7
Left	34	16.7
Bilateral	73	50.0
Total	150	100.0

Table 3 : Distribution of type of club foot.

Type of club foot	Frequency	Percent
Rigid	140	62.79
Non Rigid	83	37.21
Total	223	100.0

Table 4 : Distribution of score before tenotomy.

Final score	No. of foot	Percent
0	83	80
0.5	120	15.6
1	20	4.4
Total	223	100.0

Table 5 : Distribution of the foot by tenotomy.

Tenotomy	No of foot	Percent
Done	140	88.9
Not done	83	11.1
Total	223	100.0

Table 6 : Distribution of score after tenotomy.

Final score	No. of foot	Percent
0	128	80
0.5	10	15.6
1	02	4.4
Total	140	100.0

Table 7 : Distribution of the final score.

Final score	No. of foot	Percent
0	211	80
0.5	10	15.6
1	02	4.4
Total	223	100.0

Table 8 : Distribution of the patients by final outcome .

Result	Frequency	Percent
Satisfactory	211	94.61
Unsatisfactory	12	5.39
Total	223	100.0

Table 9 : Distribution of the patients by complication.

Result	Frequency	Percent
Complication	29	13
No complication	194	87
Total	223	100.0

Among 150 club foot baby of 211 foot had Satisfactory (94.61%) outcome, 12 (5.39%) unsatisfactory outcome. In this study it is found that 94.61% satisfactory result among 223 foot of 150 patients of idiopathic congenital club foot treated by Ponseti technique. It is quite acceptable outcome.



Figure 1 : Photograph of club foot patient.



Figure 2 : Club foot corrected by plaster.



Figure 3 : Bangla Brace, after 3 months.

DISCUSSION

Club foot is a complex deformity of foot and ankle in which fore foot is adducted, mid foot cavus, hind foot varus and ankle equinus with concomitant soft tissue abnormalities.

It is the seventh amongst common congenital defect and the first for the musculoskeletal system. Idiopathic club foot occurs worldwide with an incidence varying from 0.39 to 8 per 1000 live births⁴.

In this study, within 150 cases, the male patients were more frequent than female patients which are 98(64.7%) and 42(34.3%) respectively. Percentage of male patients was higher than female.

In 150 club foot patients, bilateral involvement of foot was observed in 73 (50%) cases. The unilateral right foot involvement is 43(28.70%) and left foot involvement is 34(16.7%). Among all deformed foot 160 (62.79%) foot of 102 patients had rigid variety and 83 (37.21%) foot of 48 patients had non-rigid variety. Percentage of rigid was higher than non rigid variety.

In this study out of 223 feet 140(88.9%) feet of 102 patients was corrected by plaster with tenotomy and 83 (11.1%) feet of 48 patients by plaster only. Percentage of tenotomy was higher than in comparison to without tenotomy.

In the 223 foot, 194 (87%) foot of 131 patients had no complication and 29 (13%) foot of 19 patients had complication (plaster sore).Percentage of no complication was higher than in comparison to with complication.

All the patients under bracing protocol (Bangla Brace) was used. The difficult part of this study was maintenance of bracing protocol. Initial two or three days were the critical period as reported by the parents. After that patients were adjusted with splint.

Out of 223 foot, after correction 211 foot (80%) had final Pirani score 0 which is normal, in 10 foot (15.6%) final Pirani score was 0.5 which is moderately abnormal, in 2 foot (4.4%) final Pirani score was 1 which is severely abnormal. Percentage of final score 0 was higher than in comparison to with final score 0.5 and 1.8. In this study it is found that 94.61% satisfactory result among 223 feet of 150 patients of idiopathic congenital club foot treated by Ponseti technique. It is quite acceptable outcome. In this study the average follow up period for these patients were 6 months.

CONCLUSION

Ponseti technique is the best method for treatment of idiopathic congenital club foot. The difficult part of this technique was maintenance of bracing protocol. Initial two or three days were the critical period as reported by the parents. After that patients were adjusted with splint.

DISCLOSURE

All the authors declared no competing interest.

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