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Management of Idiopathic Congenital TalipesEquinovarus byPonseti's method – In Indian Prospects.

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Abstract:
Objective*:Idiopathic CTEV is one of the common congenital complex deformity of the foot.Incidence of which is about 1/1000 live birth. Club foot is treated by series of corrective manipulation and cast application. Here in our series of study we follow the Ponseti's method. It is more effective, easy to be carried out in our country.Rehabilitation and follow up is done up to 6 years.*
Material and Method*:In our study 63 cases of CTEV(Club foot) were treated by Ponseti's method in Department of Orthopaedics ,M.G.M. Medical College Hospital in between 2011 to 2017. The average age group of the children were 2 weeks to 2 years.*
Result: *All the children were pre and post treatment evaluated by Pirani's scale. The result is excellent and most of the children walk properly.*
Conclusion: *Ponseti's method is good method for club foot management. The results were influenced by the age and severity of deformity.*
Keywords:*CubitusVarus, idiopathic CTEV, Ponseti's method, Pirani's score, tenotomy*

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I. Introduction

Idiopathic CTEV is a common complex deformity having eqinus and varus position of hindfoot, cavus position of midfoot and adduction and inversion of forefoot.[1]Etiology of CTEV is unknown. The genetic and extrinsic factors may play role in the development. Other theories ie. developmental, abnormal intrauterine forces, abnormal muscle fibres and neuro-muscular function and primary germ plasm defects in the talus etc.[2]The management of CTEV is remains challenged and aim of which is to make foot functional, pain free, plantigrade, mobile and normal in appearance.[3] Now a days club foot is treated by many methods, here the study was carried out by Ponseti's method.[3,4]

Correction order of manipulations
Cast 1. Correct cavus then POP * 1 week
Cast 2. Abduct foot then POP * 1 week
Cast 3. Abduct foot then POP * 1 week
Cast 4. Abduct foot then POP * 1 week
Cast 5. dorsiflex foot, possible tenotomy then POP * 3 weeks

The first manipulation and Cast usually applied within 2 weeks of life. Once the Cavus, forefoot adduction and heel varus were gradually corrected. Residual equinus is corrected by percutaneous tenotomy. It also prevents the recurrence.

The tendo-achilles is gradually stretched to correct the equinus. In children with residual equinus and in cases to avoid recurrence percutaneous tendoachilles tenotomy was done. The final cast after tenotomies is kept for 3 weeks.

II. Material and method

The present study was carried out in between January 2011 to January 2017. Total 80 cases of club foot were done out of which 63 idiopathic CTEV of below 2 years of age, both unilateral and bilateral were kept. The children of other causes i.e. neurogenic club foot, amniotic band syndrome etc. and age above 2 years were discarded.

Pirani's Score was used to assess pretreatment assessment of severity and post- treatment to assess the correction.

- The Total Pirani Score is comprised of :

- Hindfoot contracture score (HFCS) between 0 to 3
  - 3 signs each 0, 0.5 or 1
- Midfoot contracture score (MFCS) between 0 to 3
  - 3 signs each 0, 0.5 or 1

Total P/S = 0 = No deformity
Total P/S = 6 = Sever deformity

III. Observation and result

Out of 63 children 46 (73%) were male child while 17 (26%) were female. There was no difference between male and female regarding to the number of casts.

Table -1:(Sex Distribution)

Sex	Number	Incidence (%)
M	46	73%
F	17	26%

Table -2 (Age distribution)

Age group	No. of children	%
0 - 6 months	40	63.49 %
6 – 12 months	17	26 %
1 yr – 2 yrs	08	12.69 %

Table -3 Pirani Score

Pre treatment	No. of CTEV	%
6	20	31.7
5.5	14	22.2
5	13	20.4
4.5	8	12.6
4	3	4.7
3.5	4	6.3
3	1	1.49
Total	**63**	**100%**

Table – 4 Total no. of casts applied with Pirani Score

Casts	Good	Acceptable	Poor	Total
3	16	0	0	16
4	35	1	0	36
5	8	2	1	11

Table -5 No. of Tenotomy

Tenotomy	Yes	No
No. of club foot	56	7
Percentage	89%	11%

Tenotomy were done in 56 cases to reduce the chances of recurrence

Table -6 No. of Complications

Complications	No.	%
Excoriation of skin	3	4%
Pressure Sore	2	3%
Recurrences	6	9.5%

Table 7 – Incidence of CTEV in MGMMCH JSR (2011-2017)

Total no. of live births	No. of CTEV	Incidence per 1000 live birth
26,000	22	0.84/1000

IV. Discussion

The incidence of Congenital Talipes Equio-Varus deformity is 1.2/1000 live birthin India. 30000 of children born every year with CTEV. In MGMMCH, Jamshedpur, the incidence of CTEV is found 0.84/1000 live births. Non-surgical management of Club Foot is the preferred method of management world over.[3, 4]

If early intervention is done to correct this deformity, the results are good resulting in a supple and plantigrade foot. In this study an attempt is being made to evaluate the result of idiopathic club foot by conservative method of ponseti's plaster cast technique.

63 children with congenital club foot participated in the study, which lasted for six years. The number of children coming in age group 0 to 6 months was 40 (i.e. 63.49%). Herzenberg et al conducted a study with 27 patients, all under the age of 3 months undergoing Ponseti's method of castings.

In this series on an average 3-4 casts were applied for the full correction of all the club foot components. In this study the percutaneous tenotomy of the tendo-achillies was performed in 89% Cases. This percentage is compared to that observed by Ponseti in 1997. He performed tenotomy in 95% of the feet.[5]

In this series complication were noted in 16.5% of cases where the number of recurrence was more. Goksan et al in 2006 reported relapse rate of 31% in a series of patients treated by Ponseti's method.[6]
In this study the results were good in 59 cases(93.6%) and acceptable in 3 cases (4.8%).

V. Conclusion

Idiopathic CTEV remains an interesting and challenging deformity to correct. Ponseti's method is found to be a good method of correction of idiopathic CTEV deformitiesbecause it is easy to perform, more effective, efficient and affordable to Indian prospects. The results were influenced by age,as theyounger age groups were having better results. In most of the cases tenotomy has been done. Foot Abduction Brace (FABs) were given and follow up was done for six years.

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