Original Article

Comparison of Outcome of Accelerated Ponseti Technique with Standard Ponseti Technique in the Management of Idiopathic Congenital Talipes Equinovarus under Six Months of Age

Dhrubajyoti Deka[1], Sourav Dhar[2], Suvadeep Bose[3]

Abstract

Background : Congenital Talipes Equinovarus (CTEV) occurs in 1.2 per 1000 live births in Europe, but in some developing countries, the incidence is double[1]. The incidence of CTEV in India is 0.9 per 1000 live births[2]. In the past two decades, the minimally invasive Ponseti method has been proven and accepted as the worldwide gold standard for the treatment of idiopathic CTEV[3].

Aims and Objectives : To compare the outcome of Accelerated Ponseti Technique (ATP) with Standard Ponseti Technique (SPT) in the management of idiopathic congenital talipes equinovarus under six months of age.

Materials and Methods : In this prospective, randomised, controlled study, 36 patients aged less than 6 months with CTEV were randomly assigned to two interventional groups. Group A was treated by the Standard Ponseti Technique (SPT), ie, applying the Ponseti cast once a week, and Group B was treated by the ATP, ie, using the Ponseti cast twice a week. Pirani scoring for each group was done at the time of each casting, at the time of 3 weeks after Percutaneous Tendo Achilles Tenotomy (PCTAT) and after 1 month, 2 months and 3 months of Steen Beek brace (SB-brace) use by the two groups.

Results : The t-test showed that there were no significant differences in mean score of different parameters of Pirani score and total score of both right and left leg of the patients at the time of casting by two techniques till PCTAT, at the time of 3 weeks after PCTAT and after 1month,2months,3months of SB-brace use by the two groups. Though the mean number of plasters required for the patients of the STP Group was less than that of the patients of the ATP Group, the t-test showed that there was no significant difference in the mean number of plasters of the patients of the STP Group and that of the patients of the ATP Group ($t34=1.24$; $p=0.22$). However, the t-test showed that the mean number of days required for patients in the ATP Group was significantly less than that of patients in the SPT Group ($t34=8.39$, $p<0.001$).

Conclusions : Both techniques have significant effects on achieving correction and improvement of the Pirani score in CTEV of both groups. It appears that ATP requires a shorter number of days to accomplish the same result as SPT. Hence, ATP is less time-consuming and cost-effective than SPT. Moreover, by changing the cast twice in a week, ATP gives a chance to see the sore skin that may occur due to casting.

Key words : Congenital Talipes Equinovarus, Accelerated Ponseti Technique, Standard Ponseti Technique, Percutaneous Tendo Achilles Tenotomy, Steenbeek-brace.

Congenital Talipes Equinovarus (CTEV), also known as clubfoot, is a common congenital musculoskeletal deformity with an incidence of 1.2 per 1,000 live births in Europe and nearly double in developing countries[1]. In India, the incidence is approximately 0.9 per 1,000 live births[2]. Boys are more commonly affected than girls, and one-third of cases are bilateral[4]. The term talipes originates from Latin: talus (ankle), pes (foot), equinus (horse-like), and varus (inward deviation)[5]. If untreated, CTEV can result in significant physical disability and social hardship[6]. In 20 % of cases, clubfoot coexists with other congenital anomalies[7]. Idiopathic CTEV is defined by fixed adduction, supination, and varus positioning of the foot[8].

Editor's Comment :

- Both the Accelerated Ponseti Technique (ATP) and Standard Ponseti Technique (SPT) are effective in correcting idiopathic congenital talipes equinovarus (CTEV) in infants under six months.
- Both yield similar clinical outcomes, ATP significantly reduces the overall treatment duration, making it a faster and more cost-effective alternative.
- ATP enables more frequent assessment of complications, such as skin sores, thereby enhancing patient care.

Hippocrates first proposed a theory of its etiology[8]. Several hypotheses have since been suggested:

(1) Mechanical/positional Hypothesis[9] : Intrauterine constraint or oligohydramnios may restrict foot movement.

(2) Bone/joint Hypothesis[10] : Abnormal endochondral and perichondral ossification.

(3) Connective Tissue Hypothesis[11] : Excess fibrous tissue in ligaments and fascia.

[1]MBBS, DNB, PMR, FIPM, PMR Consultant, Department of PMR, Sarathi Multi Speciality Hospital, Nalbari, Assam 781335 and Corresponding Author
[2]MBBS, DNB, PMR, Assistant Professor, Department of PMR, Maharaja Jajati Keshari Medical College and Hospital, Jajpur, Odisha 755001
[3]MBBS, DNB, PMR, Senior Resident, Department of PMR, Sarat Chandra Chattopadhyay Government Medical College & Hospital (Jadurberia Campus), Uluberia, Howrah, West Bengal 711316
Received on : 18/07/2025
Accepted on : 11/11/2025

How to cite this article : Comparison of Outcome of Accelerated Ponseti Technique with Standard Ponseti Technique in the Management of Idiopathic Congenital Talipes Equinovarus under Six Months of Age. Deka D, Dhar S, Bose S. *J Indian Med Assoc* 2026; **124(3):** 20-4.

(4) Vascular Hypothesis[12] : Calf muscle atrophy from reduced anterior tibial artery perfusion.

(5) Neurological Hypothesis[13] : Association with conditions like spina bifida and cerebral palsy.

(6) Developmental Arrest Hypothesis[14] : Arrest of medial foot rotation during late fetal life.

Patho-anatomically, CTEV is characterised by smaller foot bones, an angled talus, medially rotated calcaneus and navicular bones, and shortening of posterior and medial soft tissue[15-17]. The posterior capsule of the ankle and subtalar joints is also shortened. A hallmark is a wavy collagen pattern (crimp), which facilitates gradual ligament stretching – a concept central to non-surgical correction[17].

Clinically, the foot appears in equinus, varus, adduction, and cavus deformity. The heel is small and tight, the calf muscles are wasted, and deep creases are present on the medial and posterior aspects. Diagnosis and monitoring are aided by the Pirani scoring system, which evaluates six clinical signs across the hindfoot[3] and midfoot[3] with a maximum (worst) score of[6,18,19].

Management Options Include :

(1) Non-operative – Repeated manipulation and casting with maintenance bracing[20,21].

(2) Operative – Posteromedial Soft Tissue Release (PMSTR)[22], tendon transfer, Dwyer's osteotomy[23], Dilwyn-Evans procedure[24], triple arthrodesis, and Ilizarov correction.

The Ponseti method, a minimally invasive approach, has become the Global standard. It involves weekly casting for 5-6 weeks, with final correction of equinus using percutaneous tendo-achilles tenotomy and bracing[25].

However, in resource-limited settings, weekly follow-ups pose logistical challenges for families. The Accelerated Ponseti Technique, which involves bi-weekly casting, may overcome these barriers by shortening treatment duration, improving compliance, and allowing closer monitoring for complications such as skin sores.

This study compares the outcomes of the Accelerated Ponseti Technique versus the Standard Ponseti Technique in managing idiopathic CTEV in children under six months of age.

Materials and Methods

Study Area : Outpatient Department, National Institute for Locomotor Disabilities (Divyangjan), Kolkata 700090.

Study Population : The patients visiting the Outpatient Department were listed according to the inclusion and exclusion criteria.

Sample Size : Total 36 newborn babies with idiopathic Congenital Talipes Equinovarus deformity of the foot.

Sample Size Rationale : Sample size has been calculated with the help of Epi Info (TM) 7.2.2.2. EPI INFO is a trademark of the Centres for Disease Control and Prevention (CDC). The same software was used for the statistical analysis of the data of this study.

According to the study by Harnett, *et al*[26] the tenotomy rates for the accelerated group and control group were 79% (n=19) and 52% (n=21), respectively.

This calculator uses the following formula for the sample size n:

$$n = (Z_{\alpha/2}+Z_{\beta})2 * [p_1(1-p_1)+p_2(1-p_2)] / (p_1-p_2)^2,$$

Where $Z_{\alpha/2}$ is the critical value of the Normal distribution at $\alpha/2$ (eg, for a confidence level of 95%, α is 0.05 and the critical value is 1.96), Z_{β} is the essential value of the Normal distribution at β (eg, for a power of 80%, β is 0.2 and the critical value is 0.84) and p_1 and p_2 are the expected sample proportions of the two groups.

Thus, there was a need for 36 patients with 80% power at a 90% confidence level. The number of patients in each group was 1:1. Therefore, the required number of patients in each group was 18.

Thus, the sample size was 36

Study Design : A prospective, randomised, and comparative study.

Study Duration : December 2017 to April 2019 (16 months).

Data Collection / Study Tool : Pirani scoring system.

Study Technique : After obtaining approval from the Institute's Ethics Committee, the selected cases were initially screened according to the inclusion and exclusion criteria. The parents of the newborn who fulfilled the inclusion and exclusion criteria were approached with the proposal of the study. The aim of the research and procedure was explained, and written consent was taken from the parents of the newborn babies, who agreed to participate. A thorough history and physical examination were done as per the study protocol. Then the newborn babies were randomly assigned to two groups, ie, the Standard Ponseti Technique (group A) and the Accelerated Ponseti Technique (group B), for the management of idiopathic CTEV. Both groups received the same treatment, except that in the Accelerated Ponseti Technique, the cast was changed twice a week (every three days) instead of once, as in the standard Ponseti technique. Pirani scoring was done before applying each cast. After a serial casting of 4-8 settings (For standard Ponseti-3-6 weeks and accelerated Ponseti 3-4 weeks) when 60-70 degree abduction achieved percutaneous achellis tenotomy was done if 10-15 degree dorsiflexion

was not achieved and the feet were put in a final cast with 60-70degree abduction and 10-15 degree dorsiflexion for 3 weeks. After 3 weeks of final cast, the babies were given an HM Steenbeek brace[21] to be worn for 23 hours a day for 3 months. They were called for follow-up after 1 week of prescribing the Steenbeek brace to monitor the use of the brace. If the bracing was going well they were called after 3 months to reduce the time of brace wearing from 23 hours to 14-16 hours in a day ie, the child had to wear the brace for 12 hours at night time and 2-4 hours in the middle of the day till 3-4 years of their age[27]. For this study, each case was followed up for up to 3 months post-PCTAT, from the first day of casting, in both groups, to assess the outcome of the techniques.

Statistical Analysis : Statistical Analysis was performed using Epi Info (TM) 3.5.3, a trademark of the Centres for Disease Control and Prevention (CDC).

Using this software, basic cross-tabulation and frequency distributions were prepared. A test was used to assess the association between the different study variables under investigation. The corrected test was used in case any one of the cell frequencies was found to be less than 5 in the bivariate frequency distribution.

The test of proportions (Z-test) was used to test for a significant difference between two proportions. A t-test was used to determine the significance of the difference between the means. $p<0.05$ was considered statistically significant.

Inclusion Criteria :

- Age group from 0-6 months
- A self-reported idiopathic CTEV, clinically diagnosed
- Not treated previously

Exclusion Criteria :

- Age more than 6 months
- Atypical clubfoot or syndromic clubfoot
- Recurrent clubfoot/ relapsed
- Treated earlier

Result and Analysis

Descriptive statistical analyses were performed to calculate the means with corresponding Standard Deviations (SD). The test of proportions was used to find the Standard Normal Deviate (Z) to compare the differences in proportions, and the Chi-square test was performed to identify associations. In cases where one of the cell frequencies was less than 5, the corrected Chi-square (χ) was used to determine the association between variables. $p<0.05$ was taken to be statistically significant.

Discussion

In this comparative study between the effectiveness of the Standard Ponseti Technique and Accelerated Ponseti Technique in patients with Congenital Talipes Equinovarus under 6 months of age, out of a total of 36 patients enrolled, all 36 completed the whole period of casting and underwent PCTAT, followed by 3 months of follow-up with SB-bracing, 18 each in group A and group B (Table 1).

Table 2 shows that the Chi-square test revealed no significant association between the gender of patients in the two groups ($p = 0.46$). Thus, the patients in the two groups were matched for gender, with 69.4% male and 30.6% female. This is similar to the study done by Sana Ullah, *et al*[25], where 57% were male and 43% were female.

As depicted in Table 3, there were no significant differences in the mean scores of the different parameters of the Pirani Scoring System and the total score of both right and left legs of the patients at the time of the first cast using two techniques ($p = 0.99$).

As shown in Table 4, there was an improvement in Pirani scoring in both groups and there were no significant differences in the mean score of different parameters of the Pirani Scoring System and total score of both right and left legs of the patients at the different follow-up times by the two techniques ($p>0.05$).

Table 5 shows that the mean number of days required for patients in the ATP Group was significantly less than that for patients in the SPT Group ($t34 = 8.39$, $p < 0.001$). The mean number of days required to achieve full correction in SPT was 30.72±6.42, and that of ATP was 15.17±4.54. A similar result was observed by Barik, *et al*[28] in their study that the average number of days required for correction of feet was 54.38±8.01 and 33.88±9.03 ($p<0.01$), respectively, for standard and accelerated groups.

Table 1 — *Distribution of the types of treatment of the patients*

Type of treatment	Number	%
Accelerated Ponseti Technique (ATP)	18	50.0%
Standard Ponseti Technique (SPT)	18	50.0%
Total	36	100.0%

Table 2 — *Distribution of gender of the patients of the two groups*

Gender	SPT (n=18)	ATP (n=18)	TOTAL
Male	12	13	25
Row %	48.0	52.0	100.0
Col %	66.7	72.2	69.4
Female	6	5	11
Row %	54.5	45.5	100.0
Col %	33.3	27.8	30.6
TOTAL	18	18	36
Row %	50.0	50.0	100.0
Col %	100.0	100.0	100.0

Table 3 — *Distribution of different parameters of the Pirani Scoring System and total score of both right and left legs of the patients at the time of first cast by two techniques*

Parameters of the Pirani Scoring System	SPT (n=18)			ATP (n=18)			t-test (t_{34})	p-value
	Mean±SD	Median	Range	Mean±SD	Median	Range		
Medical Crease								
Right leg	1.00±0.01	1	1 – 1	1.00±0.01	1	1 – 1	0.01	0.99 NS
Left leg	1.00±0.01	1	1 – 1	1.00±0.01	1	1 – 1	0.01	0.99 NS
Lateral Border Curvature								
Right leg	1.00±0.01	1	1 – 1	1.00±0.01	1	1 – 1	0.01	0.99 NS
Left leg	1.00±0.01	1	1 – 1	1.00±0.01	1	1 – 1	0.01	0.99 NS
The lateral part of the head of the talus								
Right leg	1.00±0.01	1	1 – 1	1.00±0.01	1	1 – 1	0.01	0.99 NS
Left leg	1.00±0.01	1	1 – 1	1.00±0.01	1	1 – 1	0.01	0.99 NS
Posterior Crease								
Right leg	1.00±0.01	1	1 – 1	1.00±0.01	1	1 – 1	0.01	0.99 NS
Left leg	1.00±0.01	1	1 – 1	1.00±0.01	1	1 – 1	0.01	0.99 NS
Empty Heal								
Right leg	1.00±0.01	1	1 – 1	1.00±0.01	1	1 – 1	0.01	0.99 NS
Left leg	1.00±0.01	1	1 – 1	1.00±0.01	1	1 – 1	0.01	0.99 NS
Rigid Equinus								
Right leg	1.00±0.01	1	1 – 1	1.00±0.01	1	1 – 1	0.01	0.99 NS
Left leg	1.00±0.01	1	1 – 1	1.00±0.01	1	1 – 1	0.01	0.99 NS
Total Score								
Right leg	6.00±0.01	6	6 – 6	6.00±0.01	6	6 – 6	0.01	0.99 NS
Left leg	6.00±0.01	6	6 – 6	6.00±0.01	6	6 – 6	0.01	0.99 NS

Table 5 also showed that the mean number of plasters required for the patients of the STP Group was less than that of the patients of the APT Group, t-test showed that there was no significant difference in mean number of plasters of the patients of the STP Group and that of the patients of the APT Group (t_{34}=1.24; p=0.22). The mean number of casts for full correction was 4.94±0.87 for SPT and 5.39±1.24 for ATP, which is comparable to the result found by Elqohary HS, *et al*[29] in their study, that the mean number of casts for full correction was 4.88 ± 0.88 in the traditional group and 5.16 ± 0.72 in the accelerated group. Xu RJ_{34} also found in his study that there were no differences between the two groups in the average number of casts (P=0.61).

Hence, in our study, we found that both techniques play an effective role in correcting CTEV; however, ATP is less cost-effective and time-consuming than SPT. So we can recommend ATP for long-distance patients. Moreover, ATP gives us the opportunity to check for skin sores more frequently (twice a week) that may occur due to casting; hence, we can recommend ATP for babies with a higher

Table 4 — *Distribution of different parameters of the Pirani Scoring System and total score of both right and left legs of the patients at the time of the sixth cast by two techniques*

Parameters of the Pirani Scoring System	SPT (n=18)			ATP (n=18)			t-test (t_{34})	p-value
	Mean±SD	Median	Range	Mean±SD	Median	Range		
Medical Crease								
Right leg	0.010±0.01	0	0 – 0	0.010±0.01	0	0 - 0	0.01	0.999 NS
Left leg	0.010±0.01	0	0 – 0	0.010±0.01	0	0 - 0	0.01	0.999 NS
Lateral Border Curvature								
Right leg	0.063±0.18	0	0.0 - 0.5	0.143±0.24	0	0.0 - 0.5	0.721	0.486 NS
Left leg	0.063±0.18	0	0.0 - 0.5	0.010±0.01	0	0 - 0	1.272	0.351 NS
The lateral part of the head of the talus								
Right leg	0.010±0.01	0	0 – 0	0.010±0.01	0	0 - 0	0.01	0.999 NS
Left leg	0.010±0.01	0	0 – 0	0.010±0.01	0	0 - 0	0.01	0.999 NS
Posterior Crease								
Right leg	0.063±0.18	0	0.0 - 0.5	0.214±0.27	0	0.0 - 0.5	1.278	0.230 NS
Left leg	0.063±0.18	0	0.0 - 0.5	0.250±0.35	0.25	0.0 - 0.5	0.728	0.588 NS
Empty Heal								
Right leg	0.500±0.01	0.5	0.0 - 0.5	0.571±0.19	0.5	0.5 - 1.0	1.269	0.356 NS
Left leg	0.500±0.01	0.5	0.5 - 0.5	0.750±0.35	0.75	0.5 - 1.0	1.362	0.500 NS
Rigid Equinus								
Right leg	1.00±0.01	1	1 – 1	1.000±0.01	1	1 - 1	0.01	0.999 NS
Left leg	1.00±0.01	1	1 – 1	1.000±0.01	1	1 - 1	0.01	0.999 NS
Total Score								
Right leg	1.625±0.35	1.5	1.5 - 2.5	1.929±0.45	2	1.5 - 2.5	1.438	0.177 NS
Left leg	1.625±0.35	1.5	1.5 - 2.5	2.000±0.71	2	1.5 - 2.5	0.728	0.588 NS

Table 5 — *Comparison of the number of days and plaster required to achieve corrections for the patients of the two groups*

Number of days and Number of plasters	SPT (n=18)	ATP (n=18)
Mean ± SD	30.72±6.42 and 4.94±0.87	15.17±4.54 and 5.39±1.24
Median	35 and 5	14 and 5
Range	21-42 and 4-7	10-25 and 4-8

risk of skin break, such as low-birth-weight babies, preterm babies or babies with skin rashes. However, to obtain more conclusive results, studies with larger sample sizes and a longer follow-up period are recommended.

Conclusion

This study investigated the effectiveness of the Standard Ponseti Technique *versus* the Accelerated Ponseti Technique in managing congenital CTEV in patients under 6 months. The results indicated that both methods have a significant effect on improving the Pirani score. It seems that ATP is less cost-effective and time-consuming than SPT.

Funding : None.

Conflict of Interest : None.

References

1 Mkandawire NC, Kaunda E — Incidence and patterns of congenital talipes equinovarus (clubfoot) deformity at Queen Elizabeth Central Hospital, Banter, Malawi. *East Afr J Surg* 2004; **9:** 28-31.
2 Mittal R, Sekhon A, Singh G, Thakral H — The prevalence of congenital orthopaedic anomalies in a rural community. *Int Orthop* 1993; **17(1):** 11-2. doi: 10.1007/BF00195214.
3 Jowett CR, Morcuende JA, Ramachandran M — Management of congenital talipes equinovarus using the Ponseti method: a systematic review. *J Bone Joint Surg Br* 2011; **93:** 1160-4 [PMID: 21911524 DOI:10.1302/0301-620X.93B9.26947]
4 Bowyer G — The ankle and foot, Apley's System of Orthopaedics and Fractures, Ninth Edition, Chapter 21, page 591.
5 Africa Clubfoot Training Project. Chapter 2 Africa Clubfoot Training Basic & Advanced Clubfoot Treatment Provider Courses - Participant Manual. University of Oxford: Africa Clubfoot Training Project, 2017.
6 Olayinka O Adegbehingbe, Adeoye J Adetiloye, Ladipo Adewole, Dennis U Ajodo; Ponseti method treatment of neglected idiopathic clubfoot; Preliminary results of a multi-centre study in Nigeria. *World J Orthop* 2017; **8(8):** 624-30.
7 Siapkara A, Duncan R — Congenital talipes equinovarus: a review of current management. *J Bone Joint Surg [Br]* 2007; **89-B:** 995-1000.
8 Miedzybrodzka Z — Congenital talipes equinovarus (clubfoot): a disorder of the foot but not the hand. *J Anat* 2003; **202:** 39-40.
9 Hoffa A — Lehrbuch der Orthopadischen Chirurgie. Stuttgart: Ferdinand Enke; (1902).
10 Fritsch H, Eggers R — Ossification of the calcaneus in the Normal fetal foot and in clubfoot. *J Pediatr Orthop* 1999; **19:** 22-6.
11 Wynne-Davies R — Family studies and the cause of congenital club foot. *J Bone Joint Surg* 1964; **46B:** 445-63.
12 Atlas S, Menacho LCS, Ures S — Some new aspects in the Pathology of clubfoot. *Clin Orthop* 1980; **149:** 224-8.
13 Nadeem RD, Brown JK, Lawson G Macnicol MF — Somatosensory evoked potentials as a means of assessing neurological abnormality in congenital talipes equinovarus. *Dev Med Child Neurol* 2000; **42:** 525-30.
14 Bareiter D — Prenatal development of the foot and ankle. *J Am Podiatric Med Assocn* 1995; **85:** 753-64.
15 Dietz F — The genetics of idiopathic clubfoot. *Clinical Orthopaedics and Related Research* 2002; **401:** 39-48.
16 Adams JC, Hablen DL — Outline of Orthopaedics. London: Churchill Livingstone. 2001.
17 Staheli L — Clubfoot: Ponseti Management Third Edition. Seattle: Global Help. 2009.
18 Hussain FN — The role of the Pirani scoring system in the management of club foot by the Ponseti method. *J Bone Joint Surg Br* 2007; **89(4):** 561.
19 Ponseti IV, Zhivkov M, Davis N, Sinclair M, Dobbs MB, Morcuende JA — Treatment of the Complex Idiopathic Clubfoot. *Clin Orthop Relat Res* 2006; **451:** 171-6.
20 Maheshwari J — Congenital talipes equinovarus, Essential Orthopaedics, 3rd edition, Mehta publication, March 2009, 196-8.
21 Ponseti IV, Zhivkov M, Davis N, Sinclair M, Dobbs MB, Morcuende JA — Treatment of the Complex Idiopathic Clubfoot. *Clin Orthop Relat Res* 2006; **451:** 171-6.
22 Yamamoto H, Muneta T, Ishibashi T, Furuya K — Posteromedial release of congenital club foot in children over five years of age. *J Bone Joint Surg (Br)* 1994; **76-B:** 555-8.
23 Kumar PN, Laing PW, Klenerman L — Medial calcaneal osteotomy for relapsed equinovarus deformity. Long-term study of the results of Frederick Dwyer. *J Bone Joint Surg Br* 1993; **75(6):** 967-71.
24 Graham GP, Dent CM — Dilwyn Evans operation for relapsed club foot long-term results. *J Bone Joint Surg [Br]* 1992; **74-B:** 445-8.
25 Harnett P, Freeman R, Harrison WJ, Brown LC, Beckles V — An accelerated Ponseti versus the standard Ponseti method: a prospective randomised controlled trial. *The journal of bone and joint surgery* 2011; **93(3):** 404-8. DOI: 10.1302/0301-620X.93B3.24450.
26 Harnett P, Freeman R, Harrison WJ, Brown LC, Beckles V — An accelerated Ponseti versus the standard Ponseti method: a prospective randomised controlled trial. *The journal of bone and joint surgery* 2011; **93(3):** 404-8. DOI: 10.1302/0301-620X.93B3.24450.
27 Ponseti I, Morcuende JA, Pirani S — Clubfoot: Ponseti management, global help, third edition, page no 6.
28 Barik S, Nazeer M, Mani BT — Accelerated Ponseti technique: efficacy in the management of CTEV. *European Journal of Orthopaedic Surgery & Traumatology* 2019; **29(4):** 919-24.
29 Elgohary HS, Abulsaad M — Traditional and accelerated Ponseti technique: a comparative study. *European Journal of Orthopaedic Surgery & Traumatology* 2015; **25(5):** 949-53.