

TO EVALUATE THE OUTCOME OF PONSTEI TECHNIQUE AS MANAGEMENT OF CONGENITAL TELEPIS EQUINO VARUS (CTEV).

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ABSTRACT

INTRODUCTION: Congenital Talipes Equinovarus (CTEV) or clubfoot is the common congenital pathology being faced by Orthopedic Surgeons during their Practice. It is the deformity of lower limb. Syndrome type occurs in many neurological and neuromuscular disorders like spina bifida or spinal muscular atrophy. Idiopathic type is common and there is no upper limb abnormality in this type. It is estimated to be found among 1 to 2 per 1000 live births. **OBJECTIVE:** To detect the outcome of Ponseti Technique in patients suffering from CTEV. **STUDY DESIGN:** Cross sectional study. **PLACE AND DURATION OF STUDY:** Sakrand Hospital Nawabshah and PMCH Nawabshah. 1st January 2019 to 31st December 2019. **PATIENTS AND METHODS:** This study was conducted at Sakrand Hospital Nawabshah related to PMC Hospital Nawabshah. All the patients were taken from Out Patient Department (OPD) and emergency center. History was taken from the patient's parents or other attendants. Thorough clinical examination was done. X ray of the affected parts were taken in order to find out the severity of the disease. **RESULTS:** Total 40 patients were selected for the study. Of them, 30 (75 %) were baby boys and 10 (25%) were baby girls. Complications of Ponseti technique are varied. 7 (17.5%) patients developed neurovascular compromise. Casting ulcer was seen 2 (5%) patients had casting ulcer. 1(2.5%) had complete foot gangrene and 1(2.5%) had partial foot gangrene. Only 2 (5%) patients developed compartment syndrome. The overall complication rate was 32.5%. **CONCLUSION:** - In short, it was concluded that Ponseti Technique in CTEV produces excellent results with least complication rate that was only 32.5%.

KEYWORDS: Clubfoot, Casting ulcer, Foot gangrene, Supination, Pronation.

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INTRODUCTION

Congenital Talipes Equinovarus (CTEV) or clubfoot is the common congenital pathology being faced by Orthopedic Surgeons during their Practice. ¹ The bones affected are calcaneus, navicular and cuboid that are medially rotated to talus. Tendon and ligaments hold them in adduction and inversion. The supination of front and pronation of back of foot occur ultimately causing cavus. ²

CTEV is syndrome when it occurs combined with other genetic syndromes but when it occurs isolated it is called idiopathic. The genetic disorders associated with this disorder are of spinal cord which is called spina bifida. Muscular atrophy can also occur with association. 1 to 2 per 1000 live births are found. It has four components which are

ankle equinas, hind foot varus, forefoot adducts and mid foot cavus. ^{3,4}

Clubfoot was first discovered by Egyptian hieroglyphs and was described by Hippocrates around 400 B.C. The management options described at that time are still in orthopedics practice. In 1929, it was Bohm who unveiled CTEV in 20th century. ^{5,6}

Regarding the treatment of CTEV, non operative option is initially recommended without looking into the deformity severity. If no improvement is found, most of surgeons decide for the 2nd option that soft tissue release posteromedially. But due to increased complications (13-50%) and recurrence, many authors are of the opinion that major surgery is the correct choice. For the last two decades, ⁷ Ponseti casting technique has become the gold standard in

world without picking up the option of Surgery. It includes sequential correction and sequential placement of plaster cast which is supported by minor operative technique called Percutaneous Achilles Tenotomy. The technique produces more than 90% outcomes have prolonged efficacy.⁸

The Ponseti casting technique of club foot management has proved to be cost effective, great efficacy and minor complications as compared to traditional surgical methods. Many authors are of the opinion that club foot should be treated by Ponseti Technique rather than surgery. It is the significant method in 3rd world countries generally in areas where still no any facility of surgical intervention is available. It is so easy method that the trained persons not related to orthopedics can also perform it in remote areas.^{9, 10}

The rationale of our study is to detect the outcome of CTEV so that better method be applied in patients of this disease. The patients can be saved from surgical trauma and economic loss following intervention.

PATIENTS AND METHODS

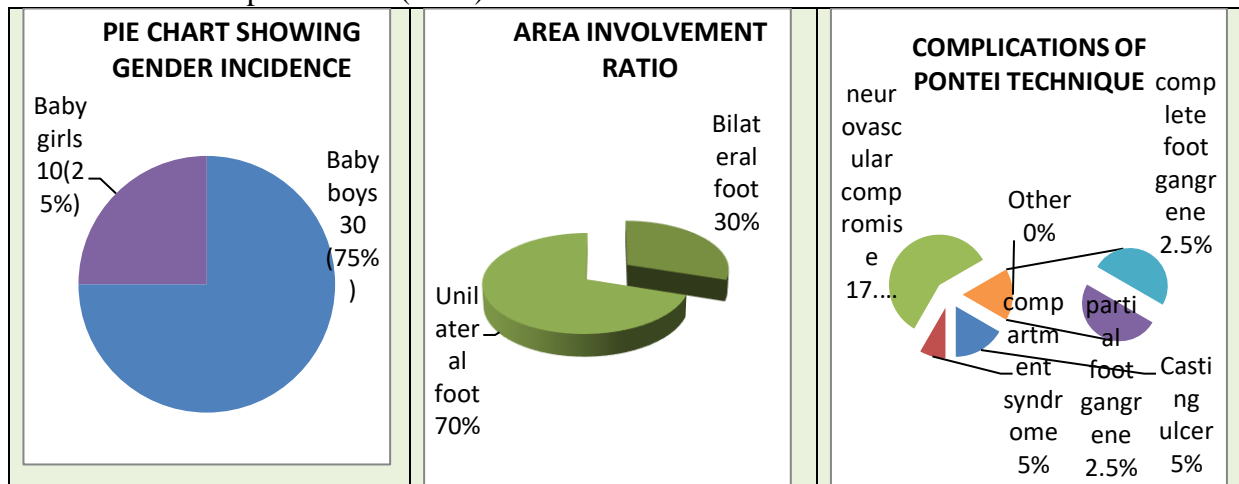
This study was conducted at Sakrand Hospital Nawabshah related to PMC Hospital Nawabshah. All the patients were taken from Out Patient Department (OPD) and

emergency center. Clinical history was written from the patient’s parents or other attendants. Thorough clinical examination was done. X ray of the affected parts were taken in order to find out the severity of the disease.

After diagnosis, all the patients were treated by Ponseti casting technique and they were called for follow up accordingly.

RESULTS

Total 40 patients were selected for the study. Of them, 30 (75 %) were baby boys and 10 (25%) were baby girls. Complications of Ponseti technique are varied. 7 (17.5%) patients developed neurovascular compromise. Casting ulcer was seen 2 (5%) patients had casting ulcer. 1(2.5%) had complete foot gangrene and 1(2.5%) had partial foot gangrene. Only 2 (5%) patients developed compartment syndrome. The overall complication rate was 32.5%. The bones of upper and lower limb both can be involved. Bilateral involvement was 12 (30%) patients only and unilateral involvement was 28 (70%) as shown below.



DISCUSSION

The Ponseti technique is used commonly in world as treatment of clubfoot. Previously, all these congenital abnormalities were being treated with modified posteromedial release, complete subtalar release or posterior release in patients aged from 9 to 12 months. Surgeries were commonly postponed and waited for suitable time. The Ponseti casting technique of correction of CTEV deformity requires serial corrective casts with long term brace maintenance of the correction. It is closely observed and supervised.¹¹

Most of the complications related to cast were skin irritation or pressure ulcers/sore. In a study done in 2007, 80% complications were casting related but in another study cast

related complications were 5% to 20%. In another study, the complication rate of cast related was 17.8%. In our study, the cast related complication rate was only 5%. Patients developed casting ulcers.¹²

In a study, the average age of presentation was 4.03 months and the common age of presentation was 4 months in 63.3% and 36.6% presenting between 4-12 months. In a study of M. Changulani et al, the mean age was 12 weeks to 12 months. In our study, the average age was 9 weeks to 12 months.¹³

In a study, male to female ratio was 1:2. In a study done by M. Changulani et al it was concluded that 75.7% were male and 24.25% were female. In our study, 75% were male and 25% were females.¹⁴

In a study, bilateral clubfoot was seen in 46.6% and unilateral clubfoot was noted in 53.3% which accords to other studies done by Ponseti et al, Changulani et al, Lehman et al, Christian et al and Pavone et al. In our study, 70% patients had bilateral disease whereas 30% had unilateral clubfoot.¹⁵

In a study, the complication rate was very low that was 17.8%. The most common complication was cast loosening in four foot that was 5.4%. Cast skin irritation was seen in 5.4%. In another study, the complication rate was 12.8%. The most common complication was wound infection. In our study, the complication rate was 32.5%. The most common complication was neurovascular compromise that was 17.5%. Complete foot gangrene was seen in 2.5% and partial foot gangrene was seen in 2.5%. Casting ulcer was seen in 5% and compartment syndrome was noted in 5% of patients.¹⁶

CONCLUSION

In short, it was concluded that Ponseti Technique in CTEV produces excellent results with least complication rate that was only 32.5%. It was safe and performed as OPD basis. It was cost effective and patients were treated without any anesthesia.

ETHICS APPROVAL: The ERC gave ethical review approval

CONSENT TO PARTICIPATE: written and verbal consent was taken from subjects and next of kin

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