

ORIGINAL ARTICLE

Incidence of Congenital Talipes Equinovarus among Children Reporting at Tertiary Care Hospital

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ABSTRACT

Objective: To determine the incidence of congenital talipes equinovarus among children reporting at tertiary care hospital.**Study setting & Duration:** The study was conducted at Watim Medical & Dental College Rawat, Rawalpindi in the departments of Anatomy, Medical education & Dentistry from January 2021 to December 2021.**Materials and Methods:** There were 988 participants in this study. An easy questionnaire was used to gather information on children with CTEV who presented themselves to the outdoor department. Both consanguineous and non-consanguineous relationships were considered.**Results:** A total of 96 (9.7%) children presented with congenital talipes equinovarus or club foot and out of these children 56 (5.7%) patients were males and 40 (4.04%) were female.**Conclusion:** Clubfoot or congenital talipes equinovarus is one of the most common abnormalities of the foot and idiopathic talipes equinovarus is most common in the studied population. It is more common in males and is mostly bilateral. It should be detected at birth and treated early to prevent permanent disability.**Keywords:** Children, CTEV, idiopathic, consanguinity

INTRODUCTION

A congenital orthopaedic abnormality known as congenital talipes equinovarus is one of the most frequent. There are 1.29 births per 1,000 livebirths for isolated talipes equinovarus.¹ The male-to-female ratio of this congenital abnormality is 2:1.²⁻⁴ In up to 30% to 50% of instances, both limbs are implicated. According to some reports, the right leg appears to be more heavily involved than the left.^{5,6} CTEV is frequently diagnosed (varus of the hind foot, adduction of the forefoot, cavus of the mid foot, equinus of the hind foot).⁷⁻⁹ A diagnosis can also be made via in utero ultrasonography.¹⁰ There is no known cause of congenital clubfoot. Although various risk factors have been postulated for clubfoot, genetic factors are certainly important.⁷

There is no genetic or extrinsic reason for the majority of clubfooted neonates. Chromosome deletions are associated with a number of distinct cytogenetic disorders, like congenital talipes equinovarus. Idiopathic CTEV may be the outcome of a complex pattern of inheritance, according to some researchers.¹¹ Idiopathic CTEV frequency was reduced in the United States and Denmark after the fortification of cereals with folic acid, or supplementation in pregnant women, according to a study published in the journal Pediatrics.¹²

This disorder is usually detected antenatally on an ultrasound or after birth. At birth the foot is carefully manipulated to see if it goes back to its position and if it does not it means it is congenital talipes equinovarus.¹³ The best treatment is the Ponseti method of serial manipulation and casting but sometimes surgery is needed. Even then some deformity persists. In Pakistan the incidence of congenital talipes equinovarus is high but studies about its causes and incidence are few. The present study has been conducted to know about the incidence of clubfoot in our part of the world.

MATERIAL METHODS

After taking permission from IRB of the hospital data was collected from relevant departments. The design of the research was cross sectional which was carried out at Watim Medical & Dental College Rawat, Rawalpindi in the departments of Anatomy, Medical education & Dentistry from January 2021 to December 2021. The CTEV diagnosis was based only on the patient's symptoms.

After the CTEV diagnosis was confirmed, data was gathered on a pre-designed proforma. Patients with previous injury/surgery

on the foot and patients older than two years of age were excluded. The patient's biodata and a short question from the parents concerning the cousin marriage were included in the data gathering proforma. For each patient's family members, a standardised questionnaire was used to gather demographic and familial information. Parents of the children participating in the research gave their consent after reading and understanding the study's protocol.

STUDY RESULTS

A total of 96 (9.7%) cases of clubfoot were recorded over a one year period in which 988 cases were observed. Of the 96 cases of congenital talipes equinovarus 89 (9%) cases were idiopathic while 7(0.71%) cases were syndromic. Of the 96 cases, 56 (5.7%) cases were male and 40 (4.04%) were female. Almost 65 (6.6%) cases were found of bilateral congenital talipes equinovarus while 31(3.13%) had cases of unilateral congenital talipes equinovarus recorded.

Table 1: Descriptive statistics of the included patients

Children	Frequency of CTEV	Male	Female
988	96 (9.7%)	56 (5.7%)	40 (4.04%)

Table 2: Frequency of bilateral, unilateral and idiopathic congenital talipes equinovarus

CTEV	Bilateral	Unilateral	Idiopathic	Syndromic
96	65 (6.6%)	31(3.13%)	89 (9%)	7(0.71%)

DISCUSSION

Congenital foot and ankle abnormality talipes equinovarus can be either bilateral or unilateral. Front foot adducts; the hind foot varus/equinus; the mid-foot equinus; the forefoot adducts¹⁴ Many times TEV is an isolated finding (ITEV), but it can also be part of an underlying hereditary condition. When CTEV arises as part of a syndrome or in conjunction with other disorders, it is more difficult to manage (such as neural tube defects, i.e. spina bifida).¹⁵

This study adds to the growing body of evidence pointing to parental consanguinity as a contributing factor in the development of clubfoot. Parental consanguinity has been linked to the development of an isolated clubfoot. Idiopathic talipes equinovarus, often known as isolated clubfoot, has no recognised cause, however various etiological theories have been advanced in the past.¹⁶

Clubfoot occurs more in males with a male to female ratio of 2:1 and is more common in the first born male child.¹⁷ Our study revealed that out of 96 patients with congenital talipes equinovarus 56 were male and 40 were female which is similar to other studies which also showed male predominance. A study carried out by Lochmiller et al.¹⁸ showed that congenital talipes equinovarus was more common in males as compared to females. In our study out of the 96 cases with talipes 65 were bilateral and 31 were unilateral which is in concordance with the study carried out by Wynne et al.¹⁹ which stated that about 50-70% cases of talipes were bilateral. Congenital talipes equinovarus can be idiopathic or syndromic. Our study revealed that 89 cases were idiopathic while only 7 were syndromic.

This is similar to the study conducted by Zosia.²⁰ which also reported that idiopathic congenital talipes equinovarus is more common. Idiopathic talipes equinovarus is usually associated with minor malformations like absent metatarsals, joint laxity and hip dislocation. Syndromic talipes is associated with neurological defects like spina bifida, arthrogryposis and myelodysplasia.²¹ Our study also revealed similar results. The exact cause of clubfoot is not known but many studies have revealed factors believed to be responsible for this disorder which includes both environmental and genetic causes like maternal diabetes and smoking, malposition in the uterus and positive family history. The aetiology of clubfoot is still not known and research is needed to know the exact cause of this disorder.²²

CONCLUSION

Clubfoot or congenital talipes equinovarus is one of the most common abnormalities of the foot and idiopathic talipes equinovarus is most common in the studied population. It is more common in males and is mostly bilateral. It should be detected at birth and treated early to prevent permanent disability.

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