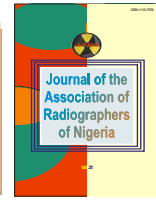




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A survey of club foot cases in southern Nigeria using radiographic request forms

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Abstract

Background: Clubfoot is a birth defect where the foot is inverted and twisted inwards. If not corrected, affected individuals usually walk with the side of their feet or ankles.

Methods: A survey of cases of clubfeet (*Talipes equinovarus*) was carried out in two orthopedic hospitals and one rehabilitation center coded NOHI, NOHE and SJRC in three cities (Lagos, Enugu and Essien-Udim) each representing a zone in Southern Nigeria. Patients' clinical history and biodata were collected from their radiological request forms between years 2000 – 2005. Number of cases in each zone, age at presentation for correction, patients' gender, foot and number of feet affected were recorded.

Results: A total of 1202 clubfeet cases were recorded. About 713(59.3%) were males and 489 (40.7%) were females. Highest number of cases was in Lagos (56.5%) followed by Essien Udim (21.8%). Majority 599(49.8%) of the children were presented between 1 – 6 months after birth. About of 97(76%) of patients who were presented after 30 weeks were from the South-South region of Southern Nigeria. Bilateral involvement was predominant (59.2%) followed by unilateral right sided involvement (23.2%). A ratio of 1.5:1 was found between males and female patients.

Conclusion: The highest number of cases recorded was in densely populated areas with a greater male to female ratio. Bilateral involvement is common and a greater proportion of children are presented within the first six months of birth. Late presentation for treatment in South-South Nigeria may be due to ignorance, poverty and lack of orthopedic hospitals and specialists to provide quality services.

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Introduction

Clubfoot is a birth defect in which the foot is inverted /twisted and pointed

downwards. Without treatment, children born with this defect often appear to walk on their side ankles or sides of the

feet¹. It is also known as *talipes equinovarus* and is one of the common birth defects^{2,3}. About 1.2 per 1000 live birth is born with club foot each year⁴. Boys are affected twice as often as girls, having a male to female ration of 2 – 2.4:1^{5,2}. Bilateral involvement is found in 30 – 50% of cases and there is a 10% chance of a child being affected if the parents already have a child with clubfoot^{4,6,1}.

Although the exact etiology is unknown, gene-environmental interaction such as maternal smoking, intrauterine exposure to misoprostol and intrauterine crowding in multiple gestations have been cited as possible risk factors^{4,1,7,8}.

Radiographs of the feet are useful baseline prior to and following surgical correction of the feet, closed achilles tenotomy, or a possible posterior release. Occasionally, radiographs are necessary to diagnose clubfeet associated with tibial hemimelia⁹. Anteroposterior and lateral views in plantar flexion are usually done. However, lateral projection with the foot held in maximum dorsiflexion is the most reliable method of diagnosing an uncorrected clubfoot⁹. Talocalcaneal parallelism is the radiographic feature of clubfeet and the talocalcaneal index is used to check for corrected clubfeet.

This defect can be easily corrected but due to the lack of orthopedic hospitals in Nigeria and ignorance of the masses, affected infants are usually presented late or left to grow with the defect¹⁰.

This study sought to survey cases of clubfoot in Southern Nigeria, determine the age range at presentation, the male to female ratio and the unilateral or bilateral involvement using a representative sample of cases presented for radiographic examination.

Methods

A retrospective study of clubfoot cases in Southern Nigeria for a period of six (6) years (2000 - 2005) was carried out using radiological request forms. Data was obtained in orthopedic hospitals coded NOHI, NOHE and a rehabilitation center coded SJRC in Lagos, Enugu and Essien-Udim, respectively. These centres represent the South-West, South-East and South-South geo-political zones of Nigeria, respectively.

Data from request forms was grouped based on the basis of sex, age at presentation and types (unilateral or bilateral involvement). The number of cases was calculated and data analyzed using percentages.

Results

Results show that 194 (16.1%) of patients were presented for treatment at <1 month after birth. About 599 (49.8%) presented at 1 – 6 months, 214 (17.8%) at 7 – 12 months, 42 (3.5%) at 13 – 18 months, 24 (1.99%) at 19 – 24 months, 12 (0.9%) at 25 – 30 months and 127 (10.5%) after 30 months of life [Figure 1].

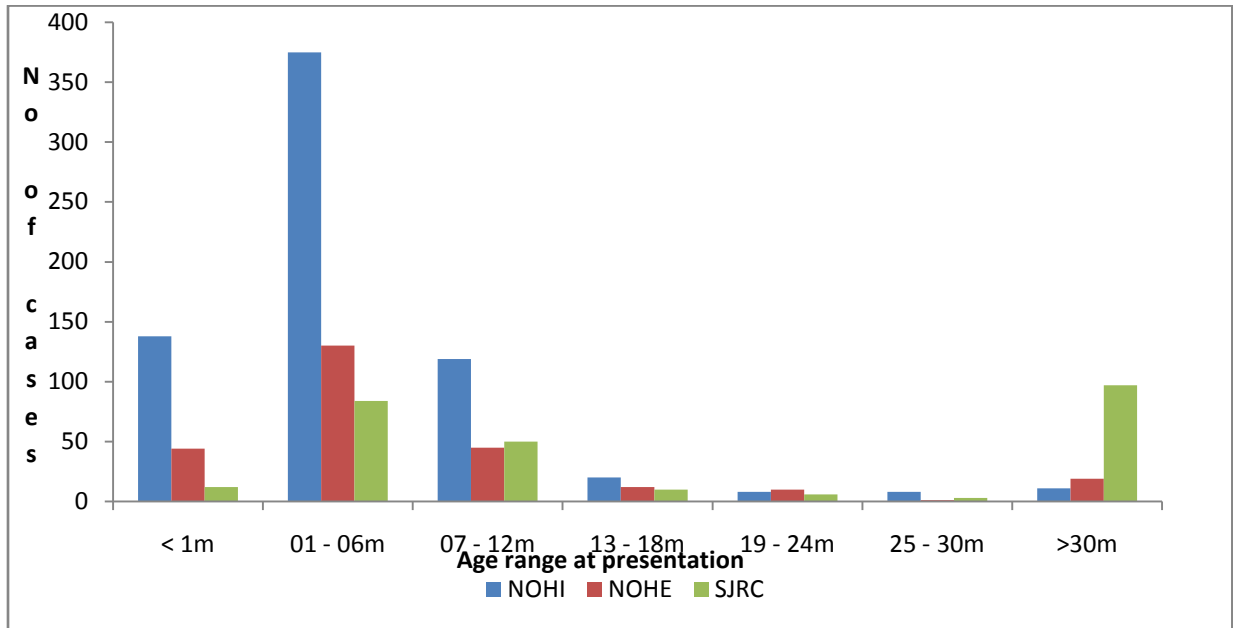


Figure 1: Age distribution of clubfoot at presentation in Southern Nigeria from year 2000 - 2005.

The highest number of cases 679 (56.5%) was recorded in NOHI, followed by SJRC and NOHE with 262 (21.8%) and 261 (21.7%) respectively [Figure 2]. A total of 713 (59.3%) of

cases recorded were males and 489 (40.7%) females. About 711 (59.2%) had bilateral club foot, 212 (17.6%) unilateral left and 279 (23.2%) unilateral right [Figure 3].

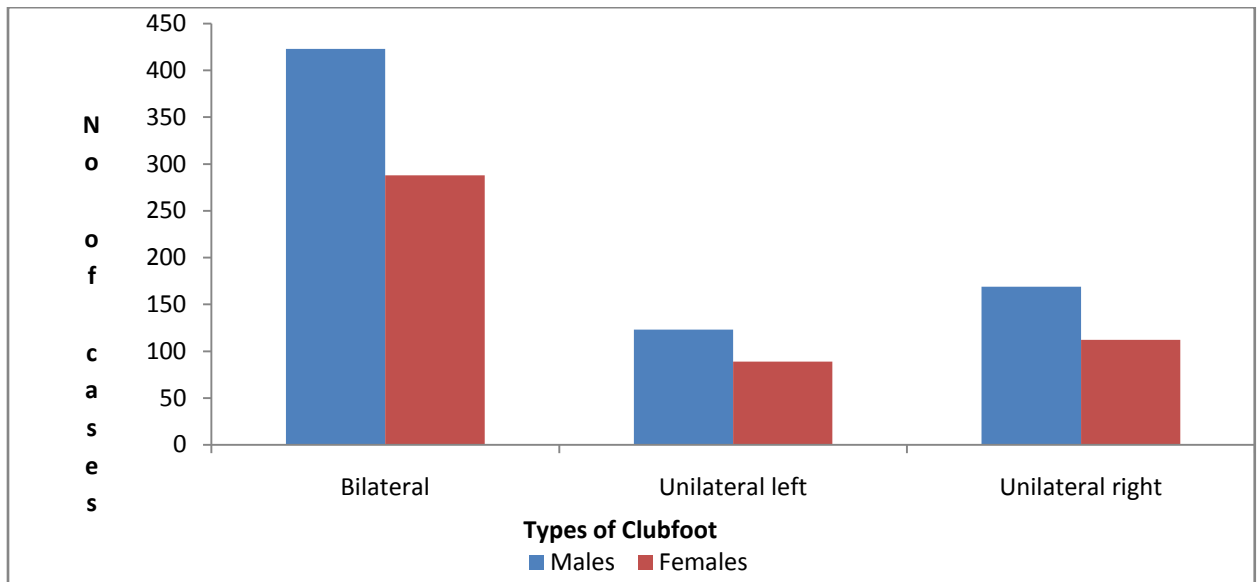


Figure 2: Distribution of types of clubfoot in Southern Nigeria

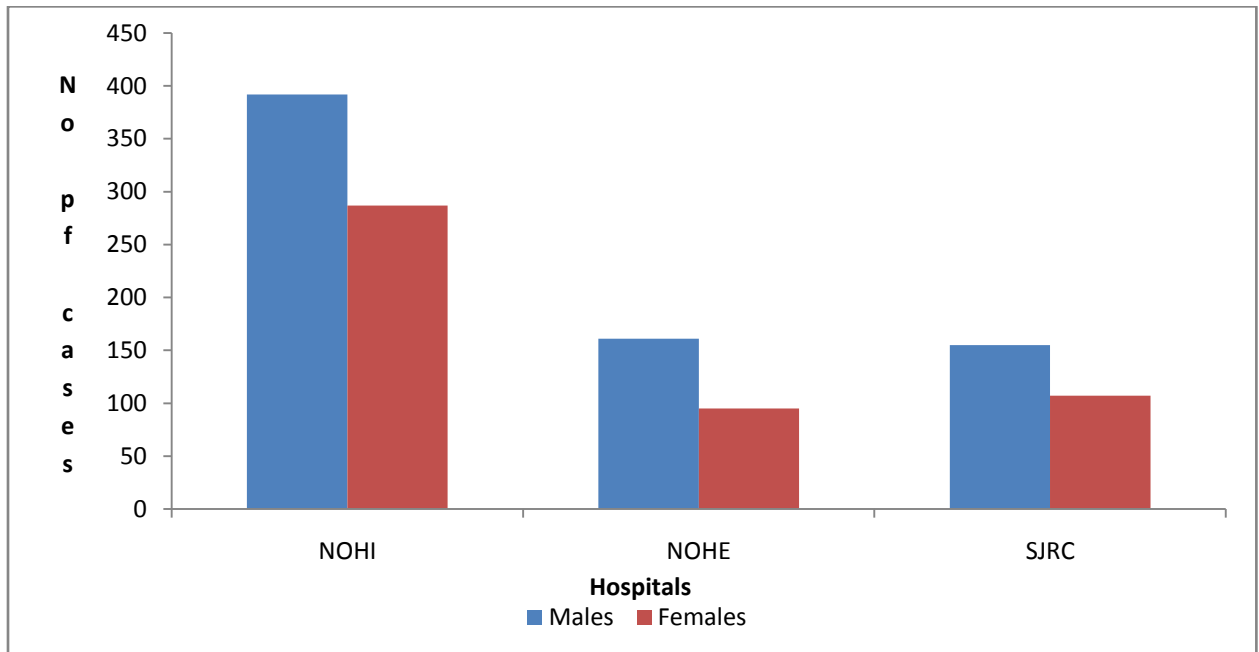


Figure 3: Sex distribution of clubfoot in Southern Nigeria

Discussion

Clubfoot is a birth defect which can be easily corrected if an attempt at treatment is planned early. Individuals with this defect are often labeled disabled or more honorably physically challenged and are usually looked down upon. There is paucity of data regarding the number of individuals with this condition in Nigeria. This survey is an attempt to create awareness of the number of cases of clubfoot in Southern Nigeria using a representative sample of births.

Our study shows that 49.8% of children born with this condition were presented for correction at 1 – 6 months after birth [Figure 1]. This agrees with the report by Patel et al¹ that children are more often presented for correction at this age range. This they attributed to fact that the

condition may be easily be corrected with manipulation and casting at this time.

Of the cases presented at this age range, 375 or (62.6%) of children were presented in the Lagos area (South-West) [Figure 1]. This large number may be due to the large sample size in this area which itself, may be due to the fact that Lagos, being a cosmopolitan city, harbors more educated individuals who are presumably aware of available treatment measures and have easy access to health facilities with orthopedic expertise. Krogsgaard et al⁷ and Paton et al¹³ have reported a higher incidence of this condition in densely populated areas citing environmental exogenous pathogens as the cause.

Similarly the highest number 97(76.4%) of patients who presented or were

presented after 30 weeks of birth was in Essien Udim (South-South) region of Nigeria [Figure 1]. This may be due to the high the level of poverty and low literacy level of parents in this region. Many of these may not even know that the condition could be corrected. Also the absence of an orthopedic hospital in South-South Nigeria and the fact that the rehabilitation center in this in region had been closed down for some years may be regarded as the most important factors accounting for the high incidence of late presentation patients with the condition for correction.

The bilateral type of clubfoot was observed to be more common. About 711 (59.2%) of the club foot cases surveyed here, had bilateral and 491 (40.8%) had unilateral involvement. Out of the 491 cases of unilateral club foot involvement, 23.2% were right footed involvement [Figure 2]. This seems to agree with the American Academy of orthopedic surgeons¹¹ which had reported a higher incidence of bilateral involvement with a more common right footed club foot than left. Other authors have also documented similar findings this in the literature^{12, 13}.

Observed in this study was a greater incidence of clubfoot cases among males 713(59.3%) than among females (489, 40.7%) [Fig.3]. A greater male to female ratio of clubfoot has also been reported by Patel et al.¹, Mathias et al.², Krogsgaard et al.⁷. Dobbs et al.⁶ have cited a 2:1 male to female ratio of the condition. This study reports a ratio of approximately 1.5 to 1 (male to female).

We recommend here, that there enlightenment campaigns may be launched particularly in the areas with low literacy levels, to educate Nigerians on the importance of early presentation of club foot for correction. The establishment of more orthopedic hospitals and the provision of quality personnel for diagnosis and correction of this condition will reduce the number of persons who grow to adulthood with clubfoot.

Conclusion

It is clear from the foregoing that children with clubfoot are often presented for treatment within the first six months of birth. Time of presentation is probably environmentally dependent. More males than females are affected and the bilateral type of clubfoot being the most common in Southern Nigeria. Education and the establishment of more orthopedic centers for its management are recommended.

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