

Aetiology and Management of Congenital Club Foot: Evaluation of Perception of Mothers in Nnewi

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ABSTRACT

Background: Congenital Club foot (CF) also known as Congenital Talipes EquinoVarus deformity (CTEV) is a common congenital deformity of the foot involving one or both feet. Numerous aetiologic hypotheses have evolved on how club foot develops. However, research findings do not support any particular theory. Parents and care givers have given different interpretations to the cause of club foot and this has, to a large extent influenced their care-seeking attitude. It is therefore important to ascertain the knowledge and perception of mothers, in our environment, on the aetiology and management of club foot, thus necessitating this study in Nnewi. **Methodology:** This is a cross sectional descriptive study involving pregnant women and mothers, who were consecutively recruited from the antenatal and postnatal clinics, and the orthopaedic out patient clinic of Nnamdi Azikiwe University Teaching Hospital Nnewi. Information were obtained from them using an interviewer based structured questionnaire. Data were analysed using SPSS statistical package version 20. IBM Illinois. **Results:** One hundred and thirty women were recruited for the study. Most of them were educated with up to 114 (87.7%) of them having either senior secondary or tertiary education as their highest educational level. Ninety of the respondents (69.2%) had heard about club foot deformities and 20 (15.4%) of them, felt that club foot deformity was as a result of poor delivery method. Up to 85 of the respondents (94.4%) had no perception about the cause of the deformity. Only 70 (53.8%) mothers felt that this problem could be treated. **Conclusion:** This study has shown poor perception amongst women and mothers in our environment, about the cause of club foot and its management. This may serve as a guide for public enlightenment.

Keywords: Clubfoot, Perception, deformity, Management

INTRODUCTION

Club foot (CF) also known as Congenital Talipes EquinoVarus deformity (CTEV) is a common congenital foot deformity.¹ This deformity occurs in about 1 to 2 in every 1,000 live births.² The incidence however varies widely with race and sex. Various studies have suggested a higher preponderance of club foot in males with 50% of these cases being bilateral.^{3,4,5} CF has also been documented to occur more on the right foot than the left in

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unilateral cases.⁵ The chances of club foot occurring in a sibling is 1 in 35, whereas the risk is higher at 1 in 3, in identical twins.⁶ It may occur in isolation or in association with other clinical syndromic conditions such as constriction band, tibia hemimelia and arthrogryposis multiplex congenita referred to as syndromic club foot. Hippocrates in 400B.C first introduced the term "Talipes Equinovarus" into medical literature and provided an initial explanation to this problem.⁷ Many aetiologic hypothesis have since evolved on how club foot develops. However, research findings do not support any theory in favour of others. These theories include- The mechanical force or positional hypothesis which suggests that club foot develops from uterine restriction arising from oligohydramnios, the connective tissue hypothesis which presupposes that CF is caused by the presence of retractile fibrosis in the soft tissue of affected feet, the vascular hypothesis, developmental arrest hypothesis and the bone/joint hypothesis. Club foot has also been associated with genetic predisposition, with the mode of inheritance thought to be multifactorial. This is supported by the high concordance rate in monozygotic twins.⁶ A positive family history of club foot is common among relatives but this varies between populations.⁸

Club foot has also been associated with maternal smoking during pregnancy. Martha et al in a population based case control study observed that the risk of club foot appears to be increased for offspring of women who smoke cigarettes particularly those who continue smoking after pregnancy is recognizable.⁹

The characteristic deformities in club foot include: equinus deformity of the ankle, heel varus, forefoot adduction and supination/ cavus deformity of the mid and forefoot. If left untreated, the condition becomes increasingly fixed and pronounced, and can severely hamper physical mobility. Studies have found that varying perceptions and knowledge about clubfoot, impact treatment-seeking behaviours. Iqbal et al in a study in India, found that people turned to traditional

spiritual healers, because spiritual forces were considered responsible for clubfoot.¹⁰ Parents and care givers alike have given different interpretations to the causes of club foot and this has, to a large extent influenced their care-seeking behaviour. Various studies have shown that mothers and care-givers of children with club foot have attributed the cause of CF to conditions unrelated to developmental aberrations eg, solar eclipse, a curse from the gods etc.¹⁰ These children are thus taken to places for treatment where their conditions are rather complicated. Late presentation to hospital for treatment is also largely due to this belief. Though there is no consensus in the literature on the aetiology of congenital club foot, it is generally agreed that it arises due to aberrations in the development of the foot in utero which is multifactorial including both genetic and environmental factors.^{11,12} Therefore, an understanding of the perception of mothers on the aetiology of club foot and intensification of public enlightenment and proper health education on CF will positively impact on the treatment outcomes

This study is therefore aimed at determining the perception of mothers on the aetiology and management of club foot. This may help to ascertain the influences that determine the choice of treatment options for these children.

METHODOLOGY

This is a cross sectional descriptive study involving women, and mothers attending antenatal, postnatal and orthopaedic clinics of the Nnamdi Azikiwe University Teaching Hospital (NAUTH) Nnewi. NAUTH Nnewi is a tertiary health institution in the South East region of Nigeria with catchment area covering Anambra State and neighbouring states like Delta, Enugu, Imo and Abia. The people are essentially Ibo speaking.

Study population: The study population was women and mothers attending the antenatal and postnatal clinics, including mothers of children who presented at the orthopaedic outpatient clinic of Nnamdi Azikiwe University Teaching Hospital Nnewi.

Study design and Sampling: This is a cross sectional descriptive study in which all consenting mothers attending the selected clinics during the period of recruitment were considered eligible. Consecutive recruitment was done on one working day per week and over a period of 3 months (January to March, 2017) The women were approached individually and enlightened on the study objectives. They were offered no inducement for participation and those who declined consent were excluded. Information was obtained from these mothers using an interviewer administered structured questionnaire. Information obtained included age of mother, marital status, educational status of mother, knowledge of club foot, source of knowledge, causes of club foot and treatment. The questions were translated to the native language when necessary and club foot was graphically described to them so they could understand the questions.

Data management: Data obtained from the study were manually assessed, cleaned, and entered into Microsoft excel and then exported to SPSS (Statistical Package for Social Sciences), version 20.IBM Illinois. Socio-demographic characteristics of the women, their knowledge and perception of club foot were presented in frequency tables.

RESULTS

One hundred and thirty mothers participated in this study. The majority of them (73=56%) were in the age range of 20 to 40 years, while only 4 (3%) were aged less than 20 years. Most of the mothers (120=92.3%) had a minimum of secondary level of education with up to 58 (48.3%) of them with tertiary education. Up to 122 (93.8%) of the respondents were Christians and 99 had between 1 to 4 children. Table 1 shows the demographic characteristics of the respondents

Knowledge and Perception of mothers on the aetiology and management of club foot

Most of the respondents had no personal experience of clubfoot, and thirty two of them had never heard

about club foot. One of the respondents had club foot in childhood and 1 had a child with club foot deformity. Ninety eight (75.4%) of the respondents claimed to have some knowledge about club foot deformities. Their major source of information was from friends (92=70.8%).When asked about the cause of club foot deformity, 20 (15.4%) of the respondents felt that club foot deformity was as a result of poor delivery method, 10 (7.7%) felt it was hereditary while 85 (65.4%) had no idea whatsoever about the aetiology (See table 2). While sixty (46.2%) respondents felt that club foot deformity was not treatable, seventy (53.9%) felt that club foot deformity could be treated. When these were asked about the best treatment option, 42 of them (60%) opted for orthodox orthopaedic treatment while 20 (28.6%) preferred herbal or traditional treatment as the best method of treatment. Concerning recurrence of the deformity post treatment, only 1 respondent felt it could reoccur while 40 of them had no idea if it could reoccur.

Table 1: Demographic characteristics of respondents

Variable	Frequency	Percentage
Education		
NONE	1	0.8
Primary	9	6.9
Secondary	62	47.7
Tertiary	58	44.6
Total	130	100
Age		
<20 years	4	3.1
20 – 40 years	73	56.2
>40 years	53	40.8
No of children		
None	15	11.5
1 – 4	99	76.2
≥ 5	16	12.3
Religion		
Christian	122	93.8
Muslim	2	1.5
Not specific	6	4.6

Table 2: Perception of mothers on the aetiology and management of club foot

	Frequency	Percentage
Perceived cause of club foot n=130		
Hereditary	10	7.7
Poor delivery method	20	15.4
Sickness in pregnancy	13	10.0
Diabolical forces	2	1.5

DISCUSSION

This study provides information about the knowledge and perception of mothers sourcing health care in a tertiary institution in Nnewi, on club foot in children. Despite the fact that most of the mothers were educated, attaining up to senior secondary education, most of them either had misconceptions or were ignorant about the cause of club foot. Many of them also felt that club foot was not treatable. For those who felt it could be treated, close to 30 percent felt that traditional treatment was a better treatment option.

The findings of poor knowledge and perception in the index study is similar to the findings of other studies.^{13,14} Burfatet *et al* in their study on Pakistan women, observed a significant level of misconception and incorrect information among the participants that cut across ethnicities and educational levels.¹³ In Pakistan, many women associated club foot with lunar and solar eclipses, religious inclinations, the health status and behaviours of parents, and genetics. Many of them also believed in traditional and religious treatments or were unaware that clubfoot is a treatable condition.

This general poor knowledge and perception of club foot may be due to lack of adequate awareness on club foot deformity and may improve with clubfoot awareness programs to inform the populace about the unique condition of clubfoot, its causes and how it presents in order to promote early identification, prompt health seeking, and appropriate treatment for this condition.

The fact that most of the women in the index study got their information about club foot from friends could explain the incorrect information with regards to the cause and treatment of club foot, as most of them attributed the cause to poor delivery method and sickness in pregnancy, with some attributing it to diabolical forces. This is because most of these friends may equally be ignorant themselves and as such cannot be relied on to provide accurate information about this condition. Conversely, a study by Alsiddiky *et al* conducted in Saudi Arabia revealed that some of the women (38.4%) who knew about clubfoot, obtained information about the condition from social media.¹⁴ Most of these Saudi women reported their perceived cause of clubfoot as hereditary and genetic disorders (58.4%), followed by neurological disorders (39.9%). This indicates that social media might be an effective option for an awareness campaign in our environment. However, further studies are needed to determine the effectiveness of different awareness campaign models and influence on caregivers health seeking attitude.

When asked whether the condition could reoccur after treatment, most of the respondents gave a negative response. This naivety may be related to the poor awareness and information about the condition. This further underscores the need for adequate education and enlightenment of all mothers on the available treatment options, and outcome of club foot treatment. The lack of adequate knowledge on outcome of club foot management may negatively impact on the health

seeking behavior and compliance to follow up of mothers of children with club foot.

Whereas more than half of the respondents had heard about club foot deformity, many of them had no idea about the possible causes of this deformity. Our finding is relatively worse than the findings by Fareedet *et al* in Southern Saudi Arabia where they noted that 35.6% of the population had no idea about the causes of club foot.¹⁵ However, their study was on the general population (including males and females), whereas this study was only on females. This finding puts a question mark on the depth of information on club foot which is available to the general public. A lacuna of knowledge on causes of club foot and appropriate management may predispose parents and care givers to resort to inappropriate care or no care at all.

This study was limited as it was an observational study on a small population. A more extensive, analytical and more generalizable study may categorically identify factors affecting the knowledge and perception on club foot in the population.

CONCLUSION

The knowledge and understanding of club foot deformity among mothers is inadequate. Whereas a significant percentage are aware of the condition, majority are unaware of the possible causes of the condition and the treatment. This deficiency in their depth of knowledge may affect their perception of the condition which could influence their choice of treatment.

Recommendations

We recommend that there should be advocacy amongst stakeholders for adequate public enlightenment and health education on the causes and best care for club foot. This could be either through social media or by physical public awareness campaign so as to correct the erroneous perceptions of mothers and care-givers about this deformity. Club foot deformity support groups where mothers can

exchange experiences and outcomes of management of their children with club foot is recommended as they can galvanise into a network for wider publicity and advocacy.

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