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Research Article

Exploring Clubfoot Care in Tanzania: A Review of Literature

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Abstract

Introduction: Clubfoot is a congenital musculoskeletal disorder of the feet that causes abnormal rotation of the feet due to abnormal development of the muscles and tendons. Clubfoot has an estimated prevalence of 1 case in 1,000 live births.

Objective: This paper aimed to explore the literature of clubfoot care in Tanzania and identify gaps for further research.

Methodology: We searched through PubMed and Google Scholar using terms such as "Clubfoot", "Congenital Talipes Equinovarus", and "Tanzania" using Boolean operators AND and OR. We did not perform any quality assessment on the papers found.

Results: Four papers exploring clubfoot care in Tanzania were found, and we came up with four themes during the review, which are the burden of clubfoot, management of clubfoot, continuous professional education and gender dynamics in clubfoot management. There are no population-based epidemiological data on the burden of clubfoot in Tanzania; however, the hospital-based studies indicate about 4.8% prevalence of neglected clubfoot. The first-line treatment of clubfoot in Tanzania is the PONSETI method, although some cases are managed by surgery. Supportive supervision and eLearning methods were reported as effective by Clinicians in improving their knowledge and clinical skills.

Conclusion: This review shows that PONSETI is the first line of treatment for clubfoot in Tanzania, as recommended. A birth defect registry should be established to obtain the true prevalence of birth defects, such as clubfoot in Tanzania. More research is needed to study the socio-economic factors affecting adherence to treatment among patients with Clubfoot and implement interventions to ensure patients finish all phases of clubfoot treatment for the best outcome.

Keywords: Clubfoot; PONSETI; Children; Patients

Introduction

Congenital talipes equinovarus, or simply clubfoot, is a congenital musculoskeletal disorder of the feet that causes abnormal rotation of the feet due to abnormal development of the muscles and tendons. Clubfoot can occur unilaterally or bilaterally. The prevalence of clubfoot in Africa is estimated to be 1.11% [1]. Globally, the burden of clubfoot is said to be 1 case in 1,000 live births, with about 80% of the cases in low-income countries [2,3].

This deformity starts to occur in earlier weeks of pregnancy, which may be due to a systemic condition or it may occur in iso-

lation, a condition termed as idiopathic clubfoot, which its cause is not fully understood. Some studies have explored risk factors of clubfoot and found that there is a possible association between clubfoot and genetics, intrauterine immobility, male gender, maternal smoking and maternal [4-7].

Clubfoot can be treated, and the treatment of choice is PONSETI treatment, which involves casting and bracing phases of treatment. The treatment for clubfoot requires several sessions at the hospital, and if not well managed, the condition can relapse [8-12].

Clubfoot causes a burden to the parents financially due to the costs of treatment, transport, and time used to seek healthcare services instead of working, this has an impact economically both at the individual and national level(13). Clubfoot affects the quality of life for both parents and children, especially before and during treatment. However, with effective treatment, the quality of life improves significantly. After treatment, there is no difference in quality of life for children born with clubfoot compared to their peers [14-17].

Methodology

This was a literature review paper, we searched papers through Google Scholar, PubMed and Embase. We searched using terms "Clubfoot", "Congenital Equinovarus Talipes" ", Tanzania", Boolean operators "AND" and "OR" were used to narrow and expand our search. we did not perform a quality assessment on the papers used in our study.

Results

During this review, we came up with four themes which are the burden of clubfoot, management of clubfoot, continuous professional education and gender dynamics in clubfoot management.

Burden of Clubfoot in Tanzania

There is no population-based epidemiological study that quantifies the burden of clubfoot in Tanzania. However, in low and middle-income countries, the prevalence of clubfoot is estimated to be 1 case in 1,000 live births, and the burden is proportionately higher in low-income countries than in high-income countries, with low-income countries bearing the burden of 80% of all cases globally [2,3]. In one hospital-based study done in Tanzania, of all the cases which were being managed at the hospital, 4.8% of the cases were at the age of 2 years and above, indicating a burden of neglected clubfoot due to delayed presentation to the hospital [18].

Management of clubfoot

One hospital-based cross-sectional study which was done in 5 hospitals reported three treatment options which are the PONSET method, PONSET and surgery combined and surgery alone however the study did not mention the reason behind the choice of treatment given [1], PIRANI score was used to assess the outcome of treatment while the number of casts used was predicted by the initial PIRANI score before treatment [19]. About 4.8% of children presented to the hospital at the age of 25 months and above, indicating a delay in seeking healthcare services and hence neglected clubfoot [18].

Continuous professional development in managing Clubfoot

In improving the quality of care in clubfoot management in Tanzania, several interventions have been implemented this includes the use of e-learning to enhance the theoretical knowledge of clinicians who manage clubfoot but also in some other settings they used supportive supervision to improve clinical outcomes for patients with clubfoot, both interventions were well received by healthcare workers in clubfoot clinics and seemed to improve both theoretical knowledge and clinical skills [20,21].

Gender dynamics in clubfoot management.

In all studies reviewed, more male children were being managed for clubfoot compared to females. in some facilities, the proportion of male children went up to 79% of all children, and only one facility in Zanzibar had more female children (52%) compared to male children [18,19].

Children presented to the hospital at the mean age of 10.7 months, with about 81.3% of children presenting at the age of 1 month to 12 months, the mean age of presentation for female children was 11 months while that of male children was 10.4 months and the mean age difference was statistically significant indicating a delay in presentation for female children [18].

Discussion

Burden of clubfoot

In Tanzania, there are no population-based epidemiological studies quantifying the burden of clubfoot, although prevalence in African countries is estimated to be 1.11 per 1,000 live births [1]. The prevalence of clubfoot shows variation between countries, with 0.5 per 1,000 live births in China to 2.2 per 1,000 live births in Turkey, and 1.24 per 1,000 live births in Sweden [1,22]. Accurate data collection on birth defects in labor wards is important in order to get the true prevalence of birth defects, including clubfoot in Tanzania.

Management of clubfoot

The mainstay treatment of clubfoot reported in most studies done in Tanzania was the PONSETI treatment [18-21]. although other methods, such as surgery and a combination of Surgery and PONSETI treatment, were discussed [18]. PONSETI has shown superiority over surgery in terms of fewer incidences of arthritis, less pain, and greater strength and adult patients treated with PONSETI fared well compared to the surgical group [23]. After treatment, Patients with clubfoot had an improved quality of life compared to their peers [8,15], necessitating earlier identification and management of clubfoot in Tanzania to avert permanent disability.

Continuous professional development in managing clubfoot

The use of supportive supervision of Clinicians managing Clubfoot was well received by healthcare workers in the Clubfoot clinic to improve their clinical skills in managing clubfoot [21]. The use of technology such as eLearning has been explored, and many clinicians were receptive to the idea, and it was found to improve the theoretical knowledge of healthcare workers of different cadres managing clubfoot in Tanzania [20]. Training of healthcare workers for clubfoot is important and has shown improvement in clinical skills among healthcare workers, and it is widely acceptable whenever there is a good relationship with the trainers and the course is well planned [24]. Continuous professional education is significant for clubfoot care to be improved in Tanzania.

Gender dynamics in Clubfoot management.

Male children were the majority of children receiving clubfoot care in almost all studies reported from Tanzania [18,19]. It is not clear whether this is because of a higher prevalence of clubfoot in male children than female children or cultural factors hindering female children from accessing clubfoot care. Some studies have shown that the prevalence of clubfoot is higher in male children than in females; hence, there will be more boys presenting to the clinic [22], However, gender has been one of the important sociocultural factors limiting girls' access to clubfoot treatment earlier [13].

Conclusion

Clubfoot treatment improves the quality of life in children born with clubfoot, it is important to improve the quality of care by identifying the condition earlier and managing the condition. While designing programs addressing the clubfoot burden in Tanzania special focus should be considered in addressing the gender gap in accessing treatment. Also, we need more research to study the epidemiology of the condition, economic burden and socio-economic factors in accessing the treatment of clubfoot. Accurate data collection on birth defects in labor wards is important in order to get the true prevalence of these defects, including clubfoot.

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