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Prevalence of restless legs syndrome in an urban population of eastern Africa (Tanzania)☆

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ABSTRACT

Objectives: Restless legs syndrome (RLS) is one of the most common neurological disorders in Caucasian populations with prevalence rates between 5% and 15%. A recent study conducted in rural northern Tanzania documented a prevalence of only 0.013%. This result requires further investigation of the epidemiology of RLS in Africa, as prevalence rates seem to vary among different ethnicities.
Patients/methods: We conducted a community-based door-to-door study in an urban environment in eastern Africa (Kinondoni district, Dar es Salaam, Tanzania), where 35.008 people aged 14 years and above were screened for RLS according to the essential diagnostic criteria. Sampling was performed by the method of cluster sampling with probability-proportional-to-size.
Results: One hundred and sixty-four people screened positively for RLS (0.47%). Ninety-two of those were subject to detailed history taking and physical examination. Four people could finally be diagnosed with RLS, yielding a RLS prevalence rate of 0.037% (95% CI 0.015%; 0.059%) among the people in Kinondoni.
Conclusion: These results support previous findings that RLS has a very low prevalence in Tanzania despite the fact that only part of the questionnaire-positive RLS people could be interviewed face-to-face, and show that this is independent of whether assessed in a rural or an urban population. According to our results it seems that indigenous Tanzanian people (which are considered representative for the population of Eastern Africa) are less prone to RLS compared to Caucasian populations. Whether the reasons for this discrepancy in prevalence are primarily genetic, environmental or have a cultural/social component remains to be determined. In addition, the study points to a limited application of the essential diagnostic criteria in settings of non-Caucasian populations. Irrespective of ethnic origin, we support the necessity of detailed history and physical examination as performed in the second part of our study to exclude RLS mimics and verify the diagnosis of RLS.

1. Introduction

Restless legs syndrome (RLS) is a prevalent neurological disorder characterized by unpleasant sensations basically experienced in the legs. These feelings normally occur at rest with a peak of symptoms in the evening or during the night and are typically relieved by movement. The frequency and intensity of occurrence of symptoms correlate with a considerable reduction of life quality due to chronic sleeplessness and tiredness during the day. The disease is further classified into primary RLS (no causing or triggering factors can be found = idiopathic) and secondary RLS (RLS triggered by an underlying medical disorder) [1,2].

A number of recent epidemiological studies report differences in the prevalence of restless legs syndrome between different geographic regions. While the prevalence of RLS among Caucasians in Europe and North America was found to be approximately 5–15% [1,2] surveys among non-Caucasian populations found significantly lower prevalence rates, e.g. 0.96% in Fukuoka, Japan [3], 1.06% in Izumo City, Japan [4], 0.1% in Singapore [5], and 0.69% in Shanghai, China [6]. With two studies only published so far comparable data in Africa is scarce owing to the fact that conducting epidemiological studies in populations of resource-poor settings is challenging due to enormous infrastructural deficits. A recent study conducted in the Pain Unit of the Central

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Hospital of Maputo, Mozambique, investigating 123 chronic pain patients documented a RLS prevalence of 6.77% [7]. Another African study with a door-to-door design performed in a rural area of northern Tanzania, evaluated data of 7.654 people for a diagnosis of RLS [8]. In this study the RLS prevalence was extremely low with ten people positive during the screening phase and only one person positive in the face-to-face evaluation. The calculated prevalence of just 0.013% was markedly different from the RLS prevalence rates in similar studies conducted in Europe and America. A study conducted in Atlanta, USA, comparing RLS prevalence among different ethnicities living in the same environment also showed a significantly lower prevalence of people with African origin [9]. The reason for the lower prevalence in the African population is not clearly understood. Genetic reasons are likely, but also environmental factors and socio-economic variables have to be considered.

We therefore conducted a study investigating the prevalence of RLS in the urban population in the area of Kinondoni, one of the three districts of Dar es Salaam, the most developed urban area of Tanzania. In the light of the low RLS prevalence found in the study of rural Tanzania (see above), the present study aimed at collecting data in a different region of the same ethnic population to further elucidate the theory of a low RLS prevalence in African populations.

2 . Methods

2.1 . Study site

The study was conducted in Kinondoni, one of the three districts of Dar es Salaam, Tanzania, with a population of about 1.1 million people living in an area of about 531 km^2 in the catchment area of the Muhimbili National Hospital (see Fig. 1 [10]). Dar es Salaam is the former capital of Tanzania and still the political and industrial center of the country with about 3.2 million people living in the greater area of the city. 158 different ethnic groups are living within the borders of Tanzania representing all four predominantly African linguistic groups including the Bantu, the Khoisan, the Nilotes and the Cushites. None of these groups covers more than 5% of the Tanzanian population apart from the Sukuma, the largest ethnic group representing 13%. Thus, the Tanzanian people are characterized by tremendous cultural and linguistic diversity united by the use of a common language Kiswahili which makes them suitable for epidemiological studies in African populations. As Dar es Salaam is one of the fastest growing cities in the world due to high mobility into town [11], the population of Kinondoni can be considered to be representative for the urban population of eastern Africa.

2.2 . Questionnaire and diagnostic criteria

The essential diagnostic criteria of the International RLS Study Group (IRLSSG) offer a standardized screening instrument for the diagnosis of RLS [12]. In our study, the diagnosis of RLS was determined by using a RLS screening questionnaire consisting of four questions including all aspects of the essential diagnostic criteria. The questions had to be slightly modified based on cultural aspects which became obvious when the questionnaire was translated from English into Kiswahili and translated back to ensure preservation of meaning throughout languages. For our study, it was deemed necessary to split the first IRLSSG question into "the urge to move" and "unpleasant sensation", the combination of both being too difficult to understand for the study population, with the consequence of re-adjusting the following questions as well; the exact wording is given in Table 1. The final version of the questionnaire in English as well as in Kiswahili was compiled and crosschecked for accuracy and clarity in collaboration by both the German (A.S.W.) and the Tanzanian supervisor (W.M.). To gain additional information about the study population the questionnaire consisted of further questions evaluating age, gender, marital status and level of education.

2.3 . Sampling procedure and study population

The administrative system in Tanzania is very well structured and consists of 114 districts in 26 regions. Every district is divided into specific wards consisting of various villages and sub-villages that are further divided into so called "ten-cells", the smallest administrative unit in Tanzania covering approximately 10 to 20 households. For our study the population of the Kinondoni district was divided into 2.886 clusters, every cluster consisting of 5 to 10 "ten-cells". A sample size of approximately 50.000 people was deemed appropriate necessitating the visit of around 15.000 households assuming a mean household size of 3.6 people. 137 clusters with a mean size of 114.1 households

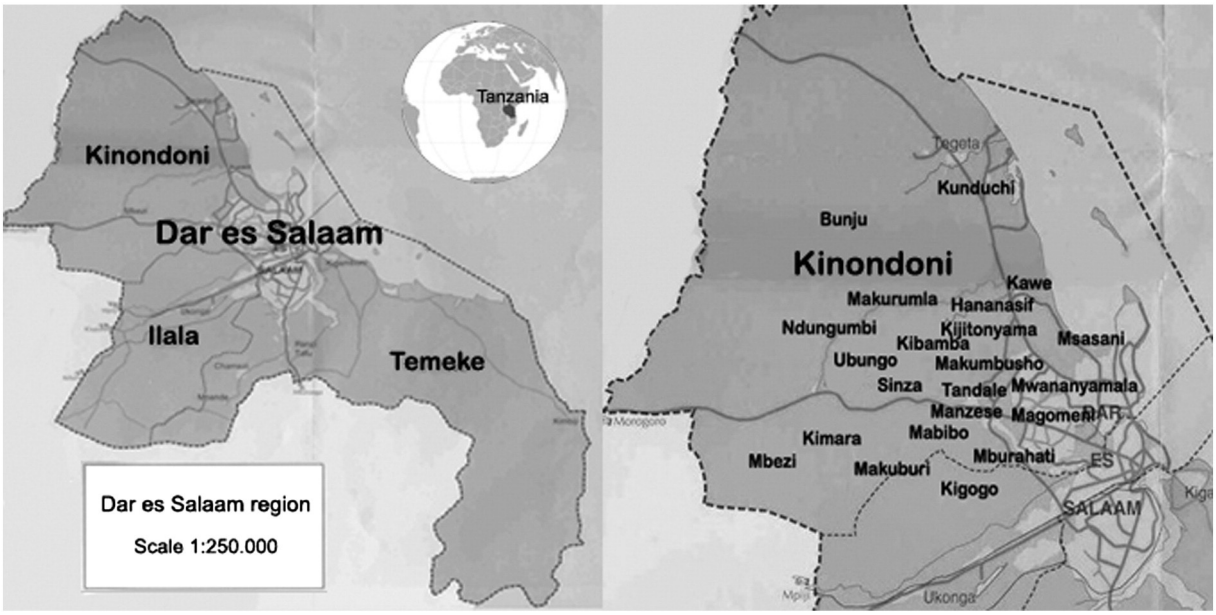

Fig. 1. Wider area of Dar es Salaam and detailed map of Kinondoni and its wards. Source: Mjini Dar — a mapping project in Dar es Salaam, Tanzania (http://mjinidar.blogspot.co.at/).

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