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PREVALENCE OF SYSTEMIC LUPUS ERYTHEMATOSUS IN KENTATTA NATIONAL HOSPITAL
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PREVALENCE OF SYSTEMIC LUPUS ERYTHEMATOSUS IN KENTATTA NATIONAL HOSPITAL

W. Sube and P. Mwamba

ABSTRACT

Introduction: **Systemic lupus erythematosus is a systemic autoimmune disease whose exact cause is unknown. Pathogenesis and onset of clinical signs and symptoms is attributed to the loss of self-tolerance by the immune system. Normal functional body cells are recognized as foreign and attacked by the immune system.**

Objectives: **To determine the prevalence of Systemic lupus erythematosus in Kenyatta National Hospital between 2007 and 2017.**

Methodology: **The study design was a descriptive cross-sectional study done at the Kenyatta National Hospital medical clinic for the period between the years 2007 and 2017. The data was collected by the use of data compilation forms to extract the data from the records.**

Data management: **The data obtained was analyzed by the use of graphs, charts, tables and calculation of percentage.**

Results: **A total of 166 patients diagnosed with SLE between the years 2007 and 2017 were included in this study. 92.2% of the patients were females while males constituted 7.8% of the study population. 79.5% of the patients were females aged 18 to 60 years.**

Conclusion: **SLE in KNH is common among females within the childbearing age (18 – 45 years).**

Recommendations: **Public awareness about SLE should be improved so as to educate the public on the signs and symptoms to enable early screening and diagnosis.**

INTRODUCTION

SLE is a chronic multisystem autoimmune disease which can affect any organ in the body[4]. The most frequent causes of death in SLE patients include infections of the cardiovascular system, pulmonary system, renal system and central nervous system. SLE has periods of relapse and remission. Symptoms of lupus range from mild to severe and may be influenced by genetic, hormonal or environmental factors.

When SLE affects organs, it causes complications. When the vascular system is affected it causes vasculitis. When the heart tissue is affected it causes pericarditis, myocarditis and heart attack. When the joints are affected arthritis is present. Involvement of the kidney presents lupus nephritis, decreased kidney function and eventually kidney failure. Involvement of the lungs presents pleurisy. Membranous glomerular nephritis with wire loop abnormalities is the histological hallmark of SLE. This is due to deposition immune complex along the glomerular basement membrane[2]. This leads to a typical granular appearance in immunofluorescence testing. Involvement of CNS presents memory changes and seizures.

When an infant born to a mother with SLE presents with symptoms of SLE the child is said to have neonatal lupus. In pregnant women SLE predisposes the mother to spontaneous abortion, preterm birth and increases the rate of death of the fetus in-utero[5].

Epidemiology:

Sex distribution: It is reported that SLE affects women more than men at 90%[6]. The frequency of onset of SLE in these women is at childbearing age[3]. The onset of lupus and flares is suggested to have an association with the use of exogenous hormones. The risk of SLE is similar to that of women in the pre-pubertal or postmenopausal age. This brings the focus to the effect of hormones on the onset of SLE. A study in England reported that that out of 100,000 women, 200 were reported to be presenting with SLE. Their ages ranging between 18 to 65 years[7]. In men, SLE is reported to be common in those with Klinefelter's syndrome (XXY genotype) [8]. In a study done in Nigeria it was reported that the percentage of women affected by SLE is 95.5% while only 4.5% of men were presenting with SLE[9].

Age distribution: SLE can affect people of any age group. However, in women the cases of SLE are reported to be higher in women of childbearing age (14-64 years). In a study done in Nigeria it was reported that the age bracket affected most by SLE is between 17 and55 years with a mean age of 33 years[9].

Race: Prevalence of SLE varies with race. Races which have been reported to have higher cases of SLE include Asians, Latinos, United Kingdom afro-Caribbean population and blacks. Black women have a higher rate of reported cases of SLE than women of any other race. They are followed by Asian women then Caucasian women[10]. In a study, it was found that cases of SLE were reported 23 times more in black women than in white men and that black women were more likely to present with SLE 2 to 4 times more than white women[1]. In black women there are lesser cases of SLE in black women in Africa than in black women in the UK[10]. This may be as a result of environmental factors or poor health infrastructure that leads to under-diagnosis in Africa.

Etiology:

The exact cause of SLE is unknown. However, some genetic and environmental factors have been attributed to the onset of clinical signs and symptoms of SLE. Susceptibility to SLE is contributed to by multiple genes. Such genes include genes encoding complement and major histocompatibility complex [11]. A

concordance of approximately 24-35% of SLE has been reported in identical twins while in dizygotic twins it is approximated at 2-5%[6]. There also is an increased frequency of SLE in family and relatives of a patient presenting with SLE[612]:

Diagnosis:

SLE does not have a single diagnostic marker and is therefore diagnosis is dependent on careful laboratory investigations and clinical assessments. One of such diagnostic criteria is the American College of Rheumatology (ACR) criteria.

Table 1

ACV criteria for classification of SLE[13]

Malar rash	Flat or raised erythema, often sparing the nasolabial fold
Discoid rash	Raised erythematosus patches with keratotic swelling,
	Follicular plugging and atrophic scarring
Photosensitivity	By patient history or physician observation
Oral ulcers	Oral or nasopharyngeal ulceration, usually painless
Non-erosive arthritis	Involving ≥2 peripheral joints, with tenderness and swelling
Pleuritis or	Pleuritic pain or rub or evidence of pleural effusion
Pericarditis	Confirmed by ECG, rub or evidence of pericardial effusion
Renal disorder	Persistent proteinuria >0.5g per day or
	Cellular casts (Red blood cells, granular, mixed)
Neurologic disorder	Seizures – in the absence of other causes or drugs
	Psychosis – in the absence of other causes or
Hematologic disorder	Hemolytic anemia – reticulocytosis or
	Leucopenia: <4000/mm or
	Lymphopenia:<1500/mm or
	Thrombocytopenia:<100,000/mm
Immunologic disorder	Positive anti-DNA or positive anti-Sm or
	Positive test for anti-phospholipid antibodies
Positive ANA	By immunofluorescence or ELISA at any point in time.

Management:

SLE has no treatment. Patient management is normally aimed at improving the quality of life by relieving the symptoms and minimizing flares. Non-steroidal anti-inflammatory drugs are used to manage pain, swelling and fever. Examples are ibuprofen naproxen and diclofenac[3]. Immunosuppressive drugs and corticosteroids are used to reduce immune response. This can pose a challenge in that suppressing the immune system predisposes the patient to other infections. Antimalarial are also used as they were found to relieve the symptoms of lupus. Example hydroxychloroquine and chloroquine[3].

SLE associated deaths can be due to the disease itself or from the treatment administered. Treatment related deaths are mostly as a result of infections due to immunosuppressive drugs administered. Causes of disease related deaths include active SLE, lupus that progresses to end stage renal disease, atherosclerosis resulting to cardiovascular disease (these manifests as myocardial infarction and angina), and leucopenia (caused by self-destruction of immune cells by auto antibodies predisposing the patient to infections) and long-term sequel of inflammation[3].

Significance of the study:

SLE is a rare condition that is often difficult to diagnose. There are few diagnostic centers in Kenya. Most of the patients diagnosed with SLE are referred to KNH. Currently we do not know the prevalence or

the socio-demographic information for our patients presenting at KNH. This study aims at studying the prevalence and socio-demographic of patients with SLE at KNH for a ten-year period (2007 to 2017). It is hoped that this information will lead to greater awareness of the disease and improve management and treatment outcomes.

Broad objective:

To determine the prevalence of SLE in KNH between 2007 - 2017

Specific objectives:

- To determine the prevalence of SLE in KNH in the period between 2007 - 2017
- To determine the socio-demographic data of patients presenting with SLE in KNH

Methodology

Study design: This was a descriptive cross-sectional study

Study Area: The study was done at the KNH medical clinic.

Inclusion criteria: Patients diagnosed of SLE during the period of 2007 to 2017

Data collection methods and materials: The source of data for this study was from records atthe Kenyatta National Hospital medical clinic. The data collection method was by use of data compilation forms to extract the data from the records.

Data analysis

The data obtained was entered into Microsoft excel version 2013, analyzed and presented in form of graphs, charts and calculation of percentage of the age groups and gender of the patients.

Ethical consideration

Since the design of this study was a descriptive cross-sectional study, there was no contact with the patients. In obtaining of the data no patient names were indicated rather each patient was assigned a serial number, hence maintaining patient confidentiality. Before performing this study clearance from the University of Nairobi/Kenyatta National Hospital ethical committee was sought and granted.

RESULTS

Socio-demographic characteristics of the study population

The study was carried out on 166 patients diagnosed with SLE between the years 2007 and 2017. A larger percentage of the population was female making up for 92.2% while the males made up to 7.8% of the study population giving a female: male ratio of 11.8:1 as shown on figure1below.

Socio-demographic characteristics of the males in study population

During the period of the study, 13 male were diagnosed with SLE with their ages ranging from two months to 65 years. They constituted 7.8% of the total study population. A summary of the age distribution of the males is shown in figure 1 below.

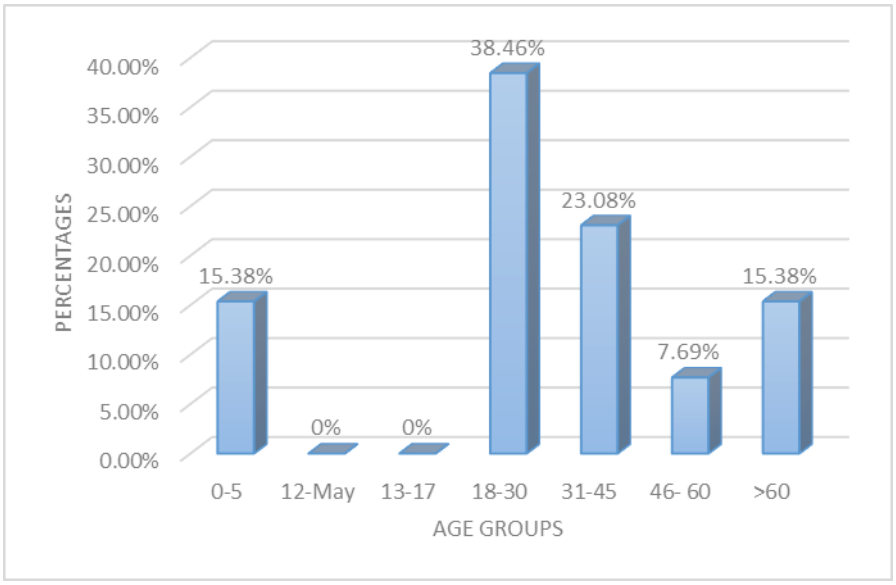

Figure 1: Socio-demographic characteristics of the males in study population

Socio-demographic characteristics of the females in study population

During the study period 153 females out of the total 166 study population were diagnosed with SLE. They made up to 92.2%. A summary of the age distribution of the females is shown in figure 3 below.

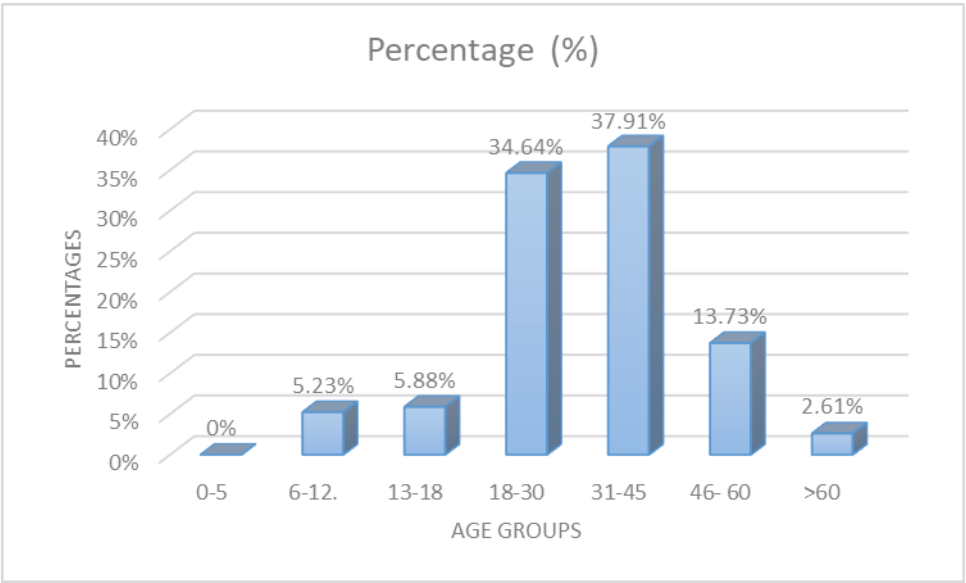

Figure 2: Socio-demographic characteristics of the females in study population

Summary of the distribution of age in the study population

Out of the total study population a larger percentage were females aged between 18 and 60 years making 79.5%, females aged 0 to 17 constituted 10.2% while females who were above 60 years of age constituted 2.4% of the study population. Males aged 18 to 60 years constituted 5.4%, 0 to 17 years constituted 1.2% while males above 60 years constituted 1.2% of the study population. This is shown in figure 4 below.

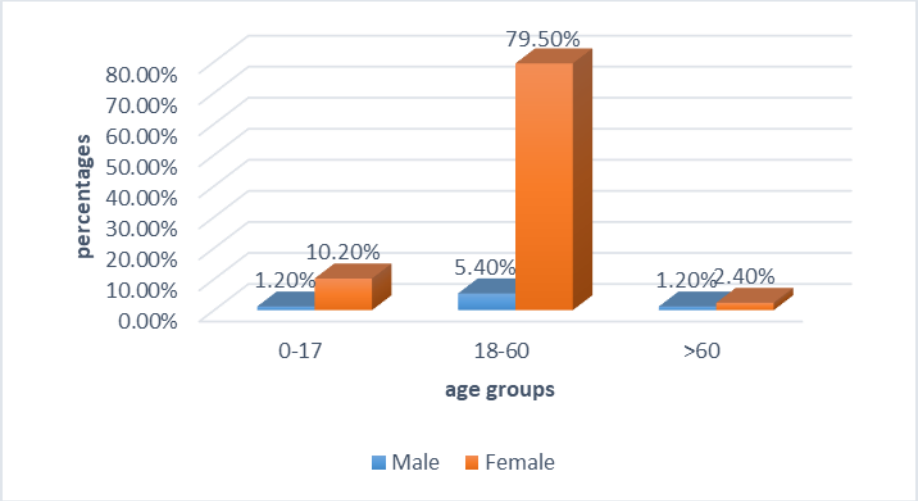

Figure 3: Summary of the distribution of age according to gender in the study population

Generally, individuals aged below 18 years constituted 11.5%of the study population, those aged between 18 and 60 years constituted the largest population distribution accounting for 84.94% of the total study population and individuals older than 60 years constituted 3.6% of the study population as illustrated in figure 5 below.

DISCUSSION

The study population consisted of 166 patients who were diagnosed with SLE in Kenyatta National Hospital between the years 2007 and 2017. The female: male ratio was 11.8:1 with female patients being 153 which represents 92.2% and male patients 13 which represents 7.8% of the total population. This high female percentage is similar to a study done in Nigeria whereby the females constituted 95.5% of the study population while male constituted of 4.5%[9]. This wide difference in proportions between male and female patients may be attributed to the fact that females are affected with SLE more than males at 90%[6] which estimates that for every one (10 male presenting with SLE nine (9) females will present with SLE. Black women are also more predisposed to present with SLE than women of other races[10].

Among the male patients population, a proportion of 15.38% were aged below 5 years, 0% between 5 and 12 years, 0% between 13 and 17 years, 38% between 18 and 30 years, 23.08% between 31 and 45 years, 7.69% between 46 and 60 years and 15.38% older than 60 years. Among the female patients population, a proportion of 0% were aged below 5 years, 5.23% between 5 and 12 years, 5.88% between 13 and 17 years, 34.64% between 18 and 30 years, 37.91% between 31 and 45 yeas, 13.73% between 46 and 60 years and 2.61% older than 60 years.

The greatest proportion of the population were female patients aged between 18 and 60 years who constituted 132 patients which represented 79.5% of the total population studied similar to a study done in England where the females ranged between 18 and 65 years[7], while the least proportion of the of the population were male patients aged below 5 years and older than 60 years both accounting for 1.2% of the total population. Generally, patients aged 18-60 years constituted the greatest percentage of the study population. They made up for 84.9% of the total study population79.5% being female patients and 5.4% being male patients. The least percentage distribution of the population was that of patients older than 60 years of age which constituted 3.6% of the study population. Of these 2.4% were female and 1.2% were male.

Out of the female patient's portion of the population, those aged between 18-45 years accounted for 72.55% and 66.87% of the total study population which was the highest. This is in accordance with a study that indicated the highest frequency of onset of SLE in females was in child bearing age[3].

In terms of age groups without considering gender the proportions in order of greatest to least is as follows, patients between 18 years and 60 years accounted for 84.9%, followed by patients below 18 years accounting for 11.5% and finally patients older than 60 years of age accounting for 3.6%. The distribution across age groups while considering gender in order of greatest to least is as follows, female patients between 18 and 60 years accounting for 79.5%[7], female patients below 18 years accounting for 10.2%, male patients between 18 and 60 years accounting for 5.4%, female patients older than 60 years of age accounting for 2.4% and finally male patients below 18 years of age and those older than 60 years has the least percentage accounting for 1.2% each.

The mean age of patients diagnosed with SLE during the study period was 33.4 years. For the male population the average age was33.4 years and for the female population the average age 33.4 years this is in accordance to a study done in Nigeria which reported that the age bracket affected most by SLE is between 17 and55 years with a mean age of 33years[9]. Also, a study done in Kenya indicated that the mean age or diagnosis of SLE to be 33 years[10].

Limitations of study: During data collection access to some patient files was a challenge due to their unavailability. Some of the patients' files did not clearly indicate the age of the patients while some files had different ages for a single patient. This presented a challenge in determining the real age of the patients hence data was collected only from patient files with clear indication of the age.

CONCLUSION

From thus study it can be concluded that:

- Females are affected by SLE more than males with females at 92.2% and males 7.8%
- Among the females affected by SLE those of childbearing age (18-45years) are more predisposed to be presenting with SLE as shown in this study composing of 66.9% of the total study population
- Adults (18-60 years) are more predisposed to present with SLE than individual below 18 years and the elderly (older than 60 years)

RECOMMENDATIONS

- Public awareness about SLE should be improved so as to educate the public on the signs and symptoms to enable early screening and diagnosis
- Further studies should be carried out to find out why females have higher rates of presenting with SLE and

come up with prophylactic measures.

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