

EFFECT OF SICKLE CELL DISEASE ON GROWTH AND PUBERTY

Anjumanara Omar, Fatma Abdallah, Beatrice Mutai

University of Nairobi, Kenyatta National Hospital

OBJECTIVES

•To describe growth and pubertal development in children and adolescents with Sickle cell disease.

METHODS

•This was a cross-sectional descriptive study involving 142 children with confirmed sickle cell disease who were being followed up at Kenyatta National Hospital's Paediatric Hematology clinic.

•Demographic information including age, gender, tribe and socio-economic data were obtained by standard questionnaire while the clinical information including height, weight and BMI were obtained by actual measurements and plotted on the CDC charts for age and gender.

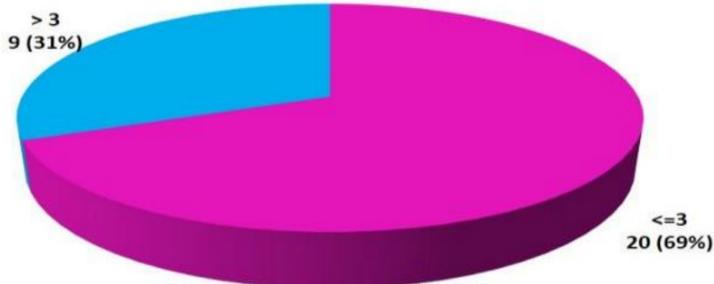
•Pubertal status in girls was determined by assessing breast tanner stage while in boys it was assessed by measuring the testicular volume. Presence of pubic and axillary hair was assessed in both.

| Gender | BMI | | Total |
|--------|------------|------------|------------|
| | <2SD | >=2SD | |
| Female | 19 (37.3%) | 32 (62.7%) | 51 (100%) |
| Male | 23 (28.8%) | 57 (71.2%) | 80 (100%) |
| Total | 42 (32.1%) | 89 (67.9%) | 131 (100%) |

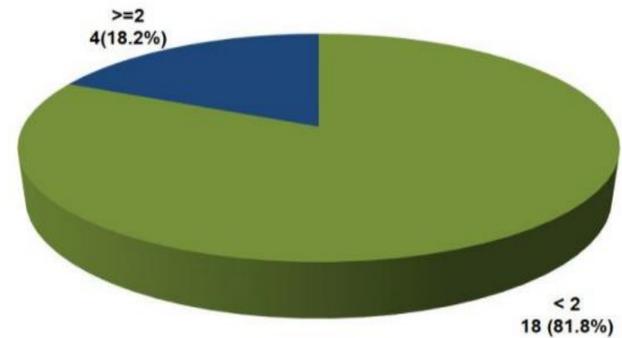
p=0.341

| Characteristic | Frequency | Percentage |
|--|-----------|------------|
| Socio demographic characteristics | | |
| Sex (n=142) | | |
| • Female | 56 | 39.4 |
| • Male | 86 | 60.6 |
| Age Male (n=86) | | |
| • <=9yrs | 53 | 61.6% |
| • > 9yrs | 33 | 38.4% |
| Age Female (n=56) | | |
| • <=8yrs | 33 | 58.9% |
| • > 8yrs | 23 | 41.1% |
| Father's ethnic group (n=139) | | |
| • Luo | 91 | 65.5 |
| • Luhya | 35 | 25.2 |
| • Other | 13 | 9.4 |
| Mother's ethnic group (n=140) | | |
| • Luo | 89 | 63.6 |
| • Luhya | 39 | 27.9 |
| • Other | 12 | 8.6 |
| Highest level of education in household (n=139) | | |
| • Primary | 37 | 26.6 |
| • High school | 4 | 2.9 |
| • Secondary | 57 | 41.0 |
| • College | 24 | 17.3 |
| • University | 17 | 12.2 |
| Family income per month (n=138) | | |
| • < 5000 | 5 | 3.6 |
| • > 20000 | 99 | 71.7 |
| • Between 20000 - 50000 | 34 | 24.6 |

Testicular Size (boys > 9 yrs)



Breast Tanner for Girls > 8 yrs



RESULTS

•The median age of patients was 7.0 years (IQR 5.5,9.5 years). Of these patients 86 (60.6%) were male and 56 (39.4%) were female with a male to female ratio of 43:28. Those with underweight were 16.3% male and 16.1% female (<-2 SD) while 11.1% male and 13.5% females were stunted (<-2SD).

•Twenty girls (96.4%) and all the boys in their respective age groups had no axillary hair while 19 of the girls (85%) and 27 of the boys (93%) had no pubic hair.

CONCLUSIONS

•A large proportion of these children were either underweight, stunted or had low BMI. There is need for longitudinal studies to determine whether this growth failure is due to the sickle cell condition or other environmental factors.

•Most of the children with sickle cell disease had not initiated puberty at their expected respective ages. Follow up needs be done on these patients to determine at what age they will go into puberty and what effects this condition has on their fertility rate.

Reference

1..Smiley D et al Therapy insight: metabolic and endocrine disorders in sickle cell disease.. [Nat Clin Pract Endocrinol Metab.](#) 2008 Feb;4(2):102-9.