

**CHOLELITHIASIS AMONG CHILDREN WITH SICKLE CELL ANAEMIA AT
MULAGO HOSPITAL, KAMPALA, UGANDA.**

INVESTIGATOR:

MUZZAZZI PIUS DAVID (MD)

SUPERVISORS:

DR. MWOROZI EDISON MBChB, MMed (MAK)

DR. MUPERE EZEKIEL MBChB, MMed (MAK), PhD (Case Western)

DR. AMEDA FAITH MBChB, MMed (MAK)

**A DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE AWARD OF A MASTER OF MEDICINE DEGREE IN
PAEDIATRICS AND CHILD HEALTH OF MAKERERE UNIVERSITY**

JULY 2012

ABSTRACT

BACKGROUND: Sickle Cell Anaemia (SCA) is the most severe and commonest inherited form of haemoglobinopathy in Africa. It has been associated with many complications, including cholelithiasis. Cholelithiasis in SCA has been associated with high morbidity and mortality, particularly in childhood, hence posing a major public health concern. Cholelithiasis is difficult to diagnose clinically in a child with SCA, and this has led to an increase in the number of hospitalization and outpatient visits.

OBJECTIVE: The study aimed at determining the prevalence, and describing the clinical manifestations and laboratory features associated with cholelithiasis among children with SCA attending Sickle cell clinic Mulago Hospital.

METHODS: Study design and setting: This was a descriptive cross sectional study carried out at the Sickle Cell Clinic (SSC)-Mulago Hospital.

Study population: The study population included children with confirmed SCA, aged 2-18yrs.

Intervention: Basic laboratory tests including White Blood Cell Count (WBC), Lactate Dehydrogenase (LDH), serum bilirubin levels and liver enzymes were done. Abdominal ultrasound scan was done to evaluate the presence or absence of cholelithiasis.

Data analysis: Summary statistics were reported using proportions, median and inter-quartile range for paired comparisons (normal Vs gallstones). Modified Cox regression model was used to assess for factors associated with gallstones.

RESULTS: The prevalence of cholelithiasis was 20.78% (95% CI: 16.55-25.55). Overall, the median age was 7.5 years (IQR=4.5-12); and 164(49.4%) were female. Participants found to have cholelithiasis were older with a median age of 12 years (IQR=8-15 years). The presence of right upper quadrant tenderness (82.61%, $p < 0.001$), jaundice (95.65%, $p < 0.001$), pallor (79.71%,

p=0.01) and being febrile (10.14%, p=0.04) were more common in children with gallstones. Participants with cholelithiasis had a higher levels of bilirubin and ALP (p=<0.001 and p=0.004 respectively). The presence of RUQ tenderness remained significantly associated with gallstones (PRR=11.8, p=<0.001).

CONCLUSION: The prevalence of cholelithiasis in children with sickle cell anaemia in Mulago Hospital, diagnosed by ultrasound scan was high. Right upper quadrant tenderness was the commonest finding in children with sickle cell anaemia and cholelithiasis, however other causes of RUQ due to hepatic crises caused by sickling in the liver or intrahepatic cholestasis should also be considered. Other clinical and laboratory characteristics were not reliable in making a diagnosis of gallstones.

RECCOMENDATION: Abdominal ultrasound scan is therefore recommended for all children with sickle cell anaemia, especially those who present with right upper quadrant tenderness, and a further study is recommended to follow up the 69 children found with cholelithiasis in this study.