Neuropsychological Changes in Children with Sickle Cell Disease and Their Correlation to the Imaging Studies

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INTRODUCTION

SCD is an autosomal recessive hemoglobinopathy characterized by hemoglobin polymerization, erythrocyte stiffening, and subsequent vaso occlusion. Early detection of neuropsychological changes in children with SCD is essential to improve their quality of life.

PATIENTS AND METHODS

This study was conducted on 50 children (27 male and 23 female; age range 2-18 years) with SCD and 25 healthy children matched age and sex. All subjects were subjected to full history taking,neurologic examination using pediatric neurological sheet, laboratory investigations, neuroimaging including: CT and /or MRI, MRA and/or CT angiography, also MRV, EEG and Stanford-Binet Intelligence scales-Fifth Edition.

RESULTS

Most of patients presented with headache 66%, cognitive decline 48%, seizures 28%, and visual affection 24%. Less common presentations were, ischemic and hemorrhagic stroke 6% and 4% respectively. SCD children showed many abnormalities on neurological examination and on different modalities of MR imaging on the brain with positive correlation (X2=7.641, p-value <0.001*, r=0.248) with many risk factors. Prophylactic blood transfusion in SCD patients with abnormal TCD had a role in reducing the incidence of stroke.

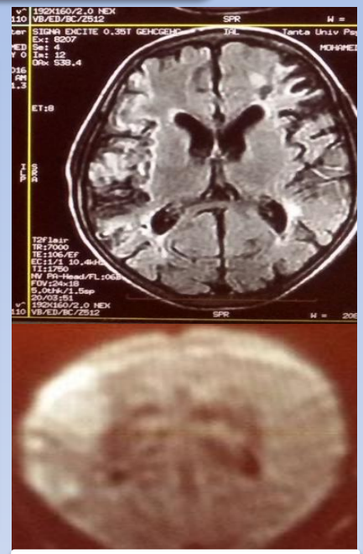

Fig. 1. MRI brain: flair and DWI films demonstrating old right middle cerebral artery infarction besides multiple lacunar infarctions on the left side.

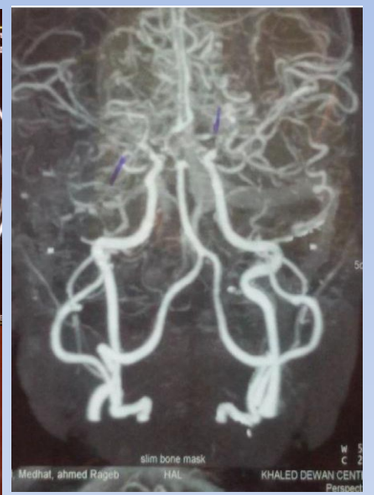

Fig. 2. CT angiography showing Moyamoya syndrome

CONCLUSION

Children with SCD were presented with variable neuropsychological disturbance that correlated with the brain imaging

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