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Study of prevalence of pulmonary hypertension in children with sickle cell anemia or sickle cell disease

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Background: Pulmonary hypertension is a potentially life-threatening complication, detected by echocardiographic evidence of elevated Tricuspid Regurgitate Velocity (TRV). This condition has been described in adults with Sickle Cell Disease (SCD) and other hemolytic disorders; however, there is little information on the occurrence of this condition in pediatric patients.

Method: Echocardiograms were performed in SCD patients under steady state conditions. Pulmonary artery hypertension (PAH) was taken as pulmonary artery systolic pressure of >30 mm Hg corresponding to a peak tricuspid regurgitate jet velocity of >2.5 m/second. For each SCD patient, all relevant past history of hospitalization, crisis, blood transfusion history and medication history were recorded. The SPSS 17.0 windows were used for all statistical analyses. The descriptive variables were presented in percentages, averages, means and standard deviations. Various clinical and echocardiographic factors were compared between sickle cell anemia/sickle cell disease patients with or without pulmonary hypertension. The Z score was calculated. A p-value less than 0.05 was considered significant.

Result: Of 38 patients of SCD, 10.52% (4 of 38) had elevated tricuspid regurgitate jet velocity >2.5 m/second. A low hemoglobin, high reticulocyte count and high platelet were significantly associated with high pulmonary artery pressures.

Conclusion: High pulmonary artery pressures do occur in children with sickle cell disease. Screening by echocardiography can lead to early detection and intervention that may potentially reverse the disease process.

Biography

Sonal Gore has completed her MBBS and is currently pursuing her Post-Graduation in Pediatrics from Jawaharlal Nehru Medical College. She is also the in-charge of a Sickle Cell Clinic at the hospital and has been actively participating in several campaigns to raise awareness about Sickle cell disease in the rural regions of Maharashtra, India.

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