Safety and Efficacy of Blood Exchange Transfusion for Priapism Complicating Sickle Cell Disease

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BACKGROUND: Priapism is unwanted painful penile erection that affects about 36% of boys and men with sickle cell disease (SCD) most of whom have sickle cell anemia. Clinically, priapism could be stuttering, minor, or major. The first two types are mild, last <4 h, are usually treated at home, have good prognosis with normal sexual function. The major type of priapism lasts >4 h, associated with severe pain, requires hospitalization; often does not respond to medical treatment and may require shunt surgery. Untreated major priapism and surgical intervention often cause impotence. In this study, we report our 15-year experience in treating adult patients with SCD and major priapism with blood exchange transfusion after being refractory to other medical therapies.

METHODS: Adult male African Americans patients with SCD and major priapism were enrolled in this study and followed for 15 years. A Haemonitics V-50 machine was initially used for whole blood exchange and was later replaced with Cobe Spectra machine for RBC exchange.

RESULTS: We used 239 blood exchanges requiring 1,136 RBC units. We maintained a post-exchange hemoglobin level of about 10 g/dL and hemoglobin S level <30%. None of the patients had any neurological complications such as headache, seizures, neurological deficits, or obtundation post-exchange.

CONCLUSION: Together, the data indicate that blood exchange transfusion for the treatment of patients with SCD and major priapism is efficacious and safe.