

Red cell exchange (RCE) is a common procedure in adults with sickle cell disease (SCD). Implantable dual lumen Vortex (DLV) ports can be used for RCE in patients with poor peripheral venous access” Shrestha et al (2015).

Reference:

Shrestha, A., Jawa, Z., Koch, K.L., Rankin, A.B., Xiang, Q., Padmanabhan, A., Karafin, M.S. and Field, J.J. (2015) Use of a dual lumen port for automated red cell exchange in adults with sickle cell disease. *Journal of Clinical Apheresis*. March 19th. .

Abstract:

Red cell exchange (RCE) is a common procedure in adults with sickle cell disease (SCD). Implantable dual lumen Vortex (DLV) ports can be used for RCE in patients with poor peripheral venous access. We performed a retrospective cohort study of RCE procedures performed in adults with SCD. The main objective of the study was to compare the inlet speed, duration of procedures and rate of complications performed through DLV ports to those performed through temporary central venous and peripheral catheters. Twenty-nine adults with SCD underwent a total of 318 RCE procedures. Twenty adults had DLV ports placed and 218 procedures were performed using DLV ports. Mean length of follow-up after DLV port placement was 397 ± 263 days. Six DLV ports were removed due to infection and 1 for malfunction after a mean of 171 ± 120 days. Compared to temporary central venous and peripheral catheters, DLV port procedures had a greater rate of procedural complications, a longer duration, and a lower inlet speed (all $P < 0.01$). When accounting for the maximum allowable inlet speed to avoid citrate toxicity, 40% of DLV port procedures were greater than 10% below maximum speed, compared to 7 and 14% of procedures performed through temporary central venous and peripheral catheters ($P < 0.0001$). In conclusion, DLV ports can be used for RCE in adults with SCD, albeit with more procedural complications and longer duration. The smaller internal diameter and longer catheter of DLV ports compared to temporary central venous catheters likely accounts for the differences noted.