

Successful salvage of central venous catheter (CVC) after > 75% of catheter related blood stream infections (CRBSI) in children on long-term home parenteral nutrition (PN)

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RATIONALE:

- A major complication of parenteral nutrition (PN) is catheter related blood stream infection (CRBSI)
- CRBSI: can be life threatening and the central venous catheter (CVC) may need to be replaced
- Recurrent CVC replacement can damage the blood vessels with eventual loss of vascular access
- Loss of vascular access is an indication for intestinal transplant

AIM OF STUDY:

How often can the CVC be saved with prompt treatment of CRBSI?

METHODS:

- Diagnosis of CRBSI was based on clinical manifestations of infection such as fever, rigors, and/or hypotension and a positive blood cultures obtained via CVC in the absence of other potential sources of infection.
- antibiotic treatment was commenced after Blood culture obtained and adjusted once bacterial sensitivities were available
- CVC were removed if severe, potentially life-threatening symptoms occurred.
- Predictive factors for CVC removal after CRBSI were investigated.

Table 1: Demographics

Patient details	TOTAL	CRBSI
Number (%)	58 (100%)	31
Male (%)	26 (%)	15
Age	7.2±4.6 years	5.8±4.3 years
Duration of PN in days	58414	108
Motility disorder	45%	
Short bowel syndrome SBS	36%	
enteropathy	19%	
Single lumen tunnelled Catheter (Hickman)	83/108 catheters	4.8%
double-lumen tunnelled Catheter (Hickman)	26/108	24%
peripherally inserted central catheter (PICC)	2/108	

CRBSI rate was 1.85/1000 catheter days

Table 2: Percentage of CVC salvaged according to organism type

Organism type	% catheter salvaged
Gram POS infection	92.7%
gram NEG	68 %
fungal	57 %
polymicrobial	78%

RESULTS

- CRBSI rate 1.85/1000 catheter days
- Overall 78.7% of catheters were salvaged/retained despite CRBSI

SIGNIFICANT FINDINGS

- CRBSI rate for double-lumen catheters was significantly > single-lumen catheters (24.1% vs 4.8%; P<0.0001).
- Patients with a double lumen CVC were found to be at increased risk for CRBSI development (HR 2.51; [95% CI 1.70-3.86]; P<0.01).

CONCLUSION:

- Antibiotic treatment without removal of the CVC should be considered as first line treatment of CRBSI in children on long-term home PN for IF
- Single lumen central venous catheters should be used whenever feasible