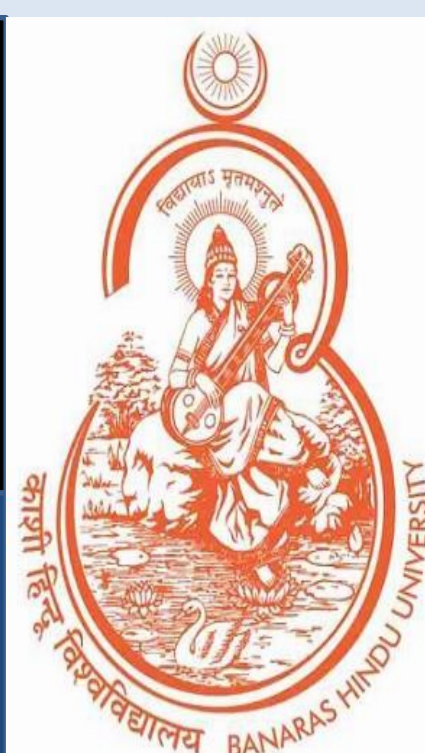




LONG TERM OUTCOMES OF TUNNELED CUFFED VASCULAR HEMODIALYSIS CATHETERS- A SINGLE CENTRE STUDY



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BACKGROUND

- Haemodialysis is the most commonly used RRT in ESRD population.
- Less than 10% of ESRD population have working AVF at initiation of dialysis.
- Tunnelled cuffed catheters are one of the long-term vascular access in HD patients.
- CRBSI continues to be the most common complication of vascular catheters limiting their utility.
- The current study was done to determine the long term outcomes of tunnelled cuffed vascular HD catheters and its complications.

AIM- To study long term outcomes of tunnelled cuffed vascular HD catheters and its complications. To study the clinical and microbiological profile of CRBSI

STUDY DESIGN

PROSPECTIVE OBSERVATIONAL STUDY

STUDY PERIOD-
Oct 2018 - Oct 2020

INCLUSION CRITERIA-
HD patients aged ≥ 18 years with tunnelled cuffed vascular catheters for ≥ 3 months

EXCLUSION CRITERIA-

- HIV / HCV Infected
- Patients with functioning AVF
- On immunosuppression
- Femoral catheters
- not consenting

INVESTIGATIONS

- COMPLETE BLOOD COUNT
- RENAL FUNCTION TEST
- LIVER FUNCTION TEST
- SERUM FERRITIN
- SERUM PROCALCITONIN
- BLOOD CULTURE(AUTOMATED)
- 2D ECHOCARDIOGRAPHY

Epidemiological data

Catheter tip culture (conventional) in refractory CRBSI

Venography in catheter dysfunction

DEFINITION

CRBSI-KDOQI 2006

DEFINITE: Same organism from catheter Tip (>15 CFU/ catheter segment) and from blood culture in a symptomatic patient with no other apparent source of infection.

PROBABLE: Blood culture positive for infection in a symptomatic patient with no other apparent source of infection

CATHETER DYSFUNCTION- KDOQI

CATHETER DYSFUNCTION -either as failure to maintain blood flow of 300ml/min or sufficient to perform HD without prolonging duration.

Institute ethics committee approval and consent taken from all study participants

FOLLOW UP

Patients were followed until catheter in situ

Statistical analysis done with SPSS Statistics software version 28.

RESULTS

Total patients with tunnelled cuffed vascular catheters for ≥ 3 months - **121**

All catheters inserted under fluoroscopic guidance ALS (heparin & Gentamycin) used in all patients

Age-
45.59 \pm 17.1 years

SEX
M:F-80:41

SIDE
Right:Left
-112:9

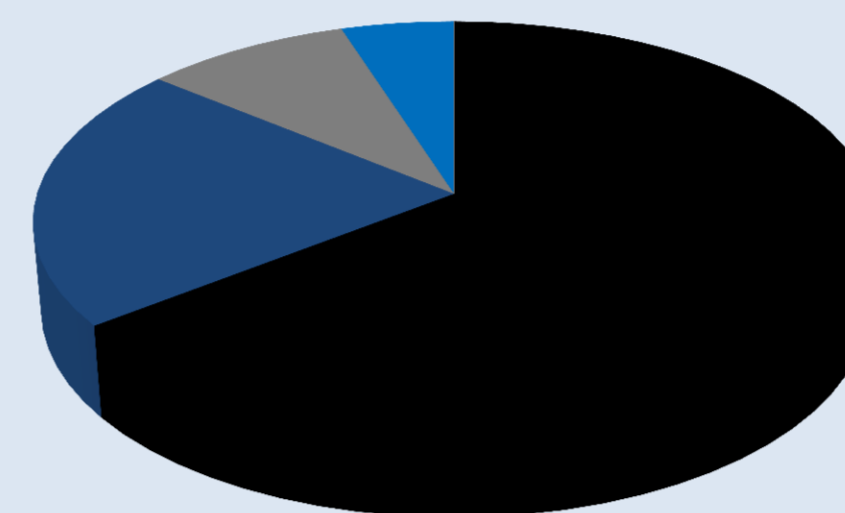
Split tip:
Palindrome -
100:21

MEDIAN CATHETER DURATION
6months (3months to 18 months)

CRBSI-96 episodes
DEFINITE-20
PROBABLE-76

CRBSI rate 4 episodes/1000 catheter days

OUTCOME



SWITCHED TO AVF(78)

DIED WITH CATHETER IN SITU(26)

REFRACTORY CRBSI(11)

CATHETER DYSFUNCTION(6)

Of 6 patients with catheter malfunction 5 had fibrin sheath and 1 had atrial thrombus

1 patient had infective endocarditis

SR NO	Organism isolated from blood culture	Number (%)
1	Staphylococcus Aureus	40(41.6%)
2	Klebsiella Pneumonia	32(33.%)
3	Pseudomonas	8(8.3%)
4	Staphylococcus Epidermidis	6(6.2%)
5	Enterococcus	5(5.2%)
6	Acinetobacter Baumanni	5(5.2%)

	CRBSI		P value
	YES(n=42)	NO(n=79)	
Age (yrs)	46.48 \pm 16.74	44.22 \pm 18.06	0.238
Ser albumin (g/dl)	2.874 \pm 0.30	3.573 \pm 0.22	<0.001
Ser ferritin (ng/dl)	754.00 \pm 163.73	448.833 \pm 131.97	<0.001
Hb(g/dl)	7.972 \pm 0.59	9.305 \pm 0.56	<0.001
TLC(cells/mm ³)	15880.80 \pm 6675.91	7501.52 \pm 1779.34	<0.001
Catheter duration (months)	8.72 \pm 1.67	4.42 \pm 1.96	<0.001
DM	27/42 (64.28%)	34/42 (35.72%)	<0.001
Temporary catheter \geq 1 month	47/68 (69.12%)	21/68(30.88%)	<0.001

Variables	Univariate logistic regression analysis		Multivariate logistic regression analysis	
	OR(95%CI)	P-value	OR(95%CI)	P-value
Serum albumin (g/dl)	0.001(0.000-0.008)	<0.001	0.393 (0.002-71.250)	0.725
Hb (g/dl)	0.013(0.003-0.060)	<0.001	0.004(0.000-3.123)	0.104
Serum ferritin (ng/dl)	1.012(1.008-1.016)	<0.001	1.003(0.992-1.014)	0.597
DM	0.420(0.194-0.909)	0.028	0.202(0.003-12.018)	0.443
Temporary catheter \geq 1 month	0.160(0.072-0.356)	<0.001	0.032(0.000-6.204)	0.200
Tunnelled catheter duration	6.337(2.856-14.061)	<0.001	13.989(1.227-159.46)	0.034

CONCLUSION

Tunnelled catheters are important vascular access for HD. CRBSI is the most common complication of vascular catheters. Even though tunnelled catheters have lower infection rate than non-tunnelled catheters, in resource poor settings the infection rates are high. In our study CRBSI rate is 4 episodes/1000 catheter days. Factors associated with higher risk of CRBSI in tunnelled catheters includes anaemia, lower serum albumin, higher serum ferritin, diabetes mellitus, prior temporary catheter use and duration of tunnelled catheter. Staphylococcus aureus (41.6%) and Klebsiella pneumonia (33%) are commonly isolated organisms in CRBSI.