Totally Implantable Vascular Access Port System (TIVAPS) Access Impact upon Infection Rate

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Purpose

- Totally Implantable Vascular Access Port Systems (TIVAPS) experience a variety of use complications, the most common is infection.
- Several conflicting articles published over the past decade regarding TIVAPS access timing relationship to infection exist with varied methods; following patients from 30 days to 1 year, and considering early access from 'on day of placement' to 'eight days after placement'. With dissimilar time to access and follow up infection occurrence comparisons, inferences were difficult to ascertain.
- Our Quality Improvement (QI) project assessed total TIVAPS removed at a Veteran Administration Medical Center (VAMC) due to infections in an oncology-based Veteran population.

Methods

- Between May 5, 2019 and June 30, 2022, 198 consecutive patients on our oncology service underwent TIVAPS placement providing the resultant pilot quality improvement data.
- Individuals categorized as either 'early access', defined as TIVAPS accessed < 7 days after placement or 'normal' access >= 7 days after placement. 3 were excluded due to not having their TIVAPS accessed.
- Infection defined as TIVAPS removal within 90 days of placement due to localized or systemic infection.
- Odds ratios (OR) and 95% confidence intervals (CI) compared infection by time of TIVAPS access. Statistical analysis used Stata/SE v16.1

Conclusions

- Our pilot data *supported* waiting 7 days to access a TIVAPS after placement significantly reduced the removal rate from infection within 90 days.
- Our patient population was 10-20 years older than in other early access studies.
- We plan to investigate this trend over multiple VA sites, evaluating if early access is an independent risk factor for TIVAPS infection, or if effect modifiers such as age, co-morbidities are involved.

Results

- The overall removal rate within 90 days due to infection was 6.7% (13/195).
- TIVAPS accessed prior to 7 days of placement demonstrated an infection rate of 14.0% (8/57) and TIVAPS accessed on or after 7 days an infection rate of 3.6% (5/138), OR = 4.30 (95% CI: 1.33 to 15.10)

Characteristic	Study participants (N=195)	Infection cases before 90 days (n=13)
Gender at Birth		
Male	184 (94.4%)	12 (92.3%)
Female	11 (5.6%)	1 (7.6%)
Age in years, mean (SD)	70.4 (7.2)	70.8 (3.9)
<50	3 (1.5%)	0 (0%)
50-59	8 (4.1%)	0 (0%)
60-69	58 (29.7%)	3 (23.1%)
70-79	110 (56.4%)	10 (76.9%)
80-89	16 (8.2%)	0 (0%)
BMI, mean (SD)	28.0 (6.2)	30.6 (7.4)
Smoking=Yes	49 (25.1%)	2 (15.4%)
Diabetes=Yes	66 (33.8%)	3 (23.1%)
Oral	35 (17.9%)	3 (23.1%)
Insulin	31 (15.9%)	0 (0%)
Type of Cancer		
Solid	162 (83.1%)	6 (46.1%)
Heme	22 (11.3%)	6 (46.1%)
None	11 (5.6%)	1 (6.3%)

Questions? Jamie.Rigoni@va.gov

Our TIVAPS Team

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