Peritoneal Drainage After Surgical Intervention for Congenital Heart Disease

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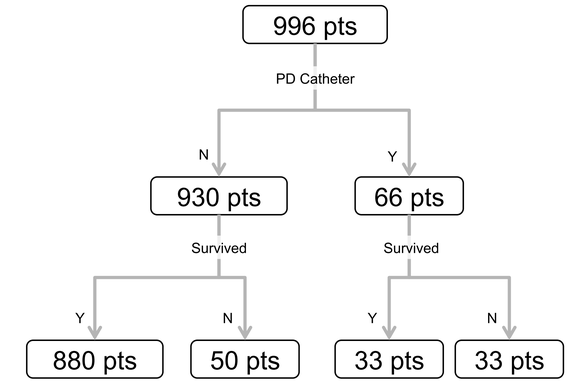
Introduction

- Patients who undergo surgical intervention for congenital heart disease (CHD) frequently develop abdominal ascites and elevated intra-abdominal pressures.
- Standard treatment is to drain ascites with a peritoneal drainage (PD) catheter as the need arises.
- Children are at particularly high risk for ascites associated complications due to their propensity for capillary leakage and infections. However, there is a lack of published research on the effectiveness of large-volume paracentesis in the pediatric population, particularly for treating cardiac failure induced ascites.
- The goal of this study was to analyze a single pediatric institution's experience with PD catheters in patients who have undergone surgical intervention for CHD.

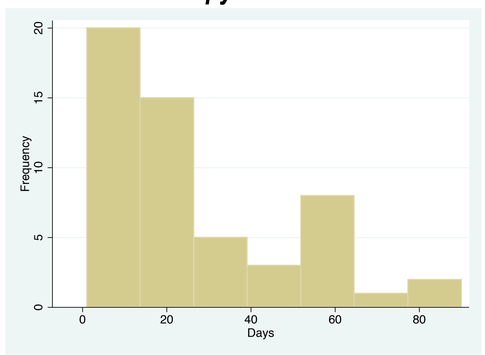
Methods

- After IRB approval, we retrospectively reviewed medical records of all patients in whom PD catheters were placed after cardiac surgery for CHD from May 01, 2009 to April 30, 2014.
- Patient outcome data points included
    - Age
    - Gender
    - Diagnoses
    - Procedure
    - daily inputs and outputs
    - hospital length of stay (LOS)
    - Mortality
    - date of surgery
    - Medications
    - lab values
- Duration of therapy is defined as the length of time from PD catheter insertion to removal.
- Statistical significance was set as $p<0.05$.
- Data was analyzed using Chi-square and Student's t-tests for normally distributed categorical and continuous data respectively.

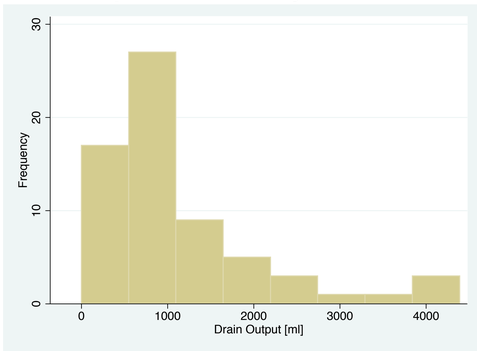
Parameter	Value
Age	2.5 +/- 4.5years
Female	39 (59.1%)
Duration of Therapy	42.5 +/- 63.3days
Creatinine	1.14 +/- 0.91
One of more vasopressors	54 (81.8%)
Initial drain output (First 5 days)	1.14 +/- 0.98 liters
Time from CV surgery to drain placement	20.1 +/- 31.4 days
Mortality	33 (50%)



Duration of Therapy



Drain Output in First 5 Days



Results

- In total, there were 996 patients who had heart surgery with 1,313 independent cardiac surgical events at our institution. Of those, 66 patients received PD catheters for ascites after cardiac surgery.
- Twenty-seven (40.9%) were male.
- The mean age was 2.5 years (Range: 5 days – 23.3 years).
- Mean duration of therapy was 42.5 days (Range: 1-401 days).
- Thirty-seven (56.1%) patients received PD catheters within 30 days (Mean 11.2 days) of cardiac surgery.
- Thirty-three patients (50%) survived.
- Mortality rate for all patients who had a heart surgery was 8.3% (83 out of 996).
- Forty percent of all patients who died during a cardiac surgical admission had a PD catheter placed (33 of 83).
- There were no differences in sex, age, duration of therapy, drain output, vasopressor requirement, or creatinine between survivors and nonsurvivors.

Conclusions

- While peritoneal drainage catheters may facilitate end organ perfusion and venous return, it is unclear whether they confer a survival advantage.
- In the setting of PD catheter placement, factors other than patient sex, age, and drain effectiveness, likely play a larger role in patient outcomes.
- Further studies investigating factors which predict mortality in patients in whom PD catheters are considered may improve treatment selection criteria.