High Burden of Diarrhea and Abdominal Pain After Pediatric Heart Transplantation

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BACKGROUND

- Gastrointestinal (GI) side effects are common and reduce quality of life in adults after heart transplant (HTx)
- GI side effects can lead to dose reduction or termination of immunosuppressive medications in adults after HTx
- This strategy is associated with graft rejection and mortality in adults after HTx
- The prevalence of diarrhea and abdominal pain in pediatric HTx are not known
- The **specific aims** of this study are to determine:
  1. The prevalence of diarrhea and abdominal pain in children who have undergone HTx
  2. The frequency of post-HTx emergency room (ER) visits and hospitalizations due to diarrhea

METHODS

- Inclusion criteria: pediatric HTx patients (1 – 18 years old) seen at a routine outpatient clinic visit
- Exclusion criteria: patients < 1 year post-HTx, re-transplanted, or transplanted at a different institution
- Patients filled out a Bristol Stool Form Scale (BSFS; **Figure 1**) and abdominal pain assessment form
- Retrospective chart review to determine the cause of all post-HTx ER visits and hospitalizations

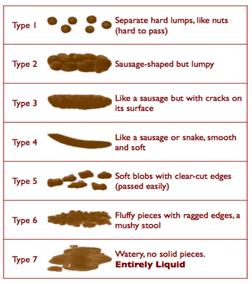


Figure 1: Bristol Stool Form Scale

- Diarrhea = BSFS scores 6 and 7

RESULTS

Table 1: Diarrhea vs No Diarrhea

	Diarrhea (n = 20)	No Diarrhea (n = 13)	p - value
Age at survey (years; median/IQR)	6.7 (2.8 – 12.2)	9.9 (6.8 – 14.8)	0.35
Age at HTx (years; median/IQR)	2.5 (0.7 – 10.6)	1.9 (1.0 – 6.4)	0.89
Male (n, %)	7 (35%)	9 (69%)	0.08
On mycophenolate (n, %)	13 (65%)	9 (69%)	1.0
***Dose* of mycophenolate (mg/kg)**	26.4 (12.1 – 31.8)	20.5 (16.2 – 29.1)	1.0
On tacrolimus (n, %)	20 (100%)	11 (85%)	0.15
***Dose* of tacrolimus (mg/kg)**	0.16 (0.06 – 0.25)	0.13 (0.09 – 0.20)	0.43
On sirolimus (n, %)	2 (10%)	3 (23%)	0.36
On prednisone (n, %)	8 (40%)	5 (39%)	1.0
On magnesium (n, %)	18 (91%)	12 (92%)	1.0
***Dose* of magnesium (elemental mg/kg)**	5.6 (2.8 – 20.0)	4.1 (1.5 – 6.3)	0.16
Time post-HTx (years; median/IQR)	2.6 (1.3 – 5.1)	6.5 (3.7 – 9.8)	**0.01**

Figure 2: Hospitalizations per Year

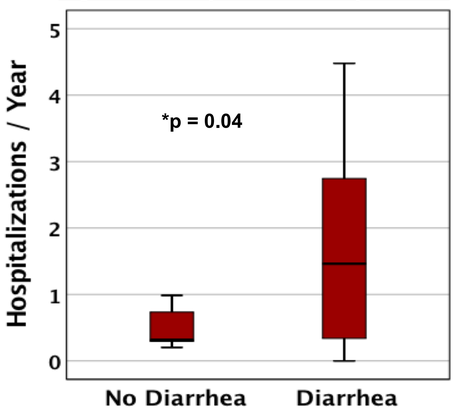
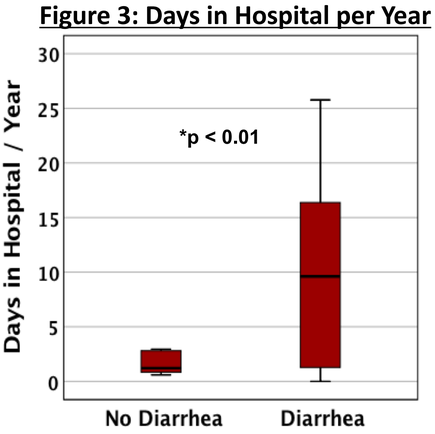


Figure 3: Days in Hospital per Year



- Surveys were completed by 33/38 patients
- 32/33 (97%) patients previously complained of diarrhea
- There were 135 ER visits and 94 hospital admissions for diarrhea (47% of total) compared to 18 admissions for confirmed or treated acute rejection (8% of total)
- Patients with diarrhea had more hospitalizations per year and more days in hospital per year (**Figures 2 and 3**)
- 17/33 (52%) patients were currently experiencing pain at least once per day; only factor associated with pain was the use of steroids (p=0.037)

CONCLUSIONS

- Diarrhea and abdominal pain are very common in outpatient pediatric HTx patients
- Diarrhea accounts for ~50% of pediatric post-HTx hospitalizations in a small, single-center cohort
- Children with post-HTx diarrhea have shorter time post-HTx compared those without diarrhea
- There is no association between the presence of diarrhea and the use or dosage of any immuno-suppressive medication or the use or dosage of magnesium supplementation
- A better understanding of the etiologies of diarrhea and abdominal pain is needed to help minimize these very common and significant morbidities

We will not discuss off label use and/or investigational use of any drugs/devices. *No Disclosures*