Kirklin-Ashburn Fellow

Introduction, Learning the System, Future Directions

Paul Devlin
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Current Projects

- AAOCA:
  - Ischemic Patient Anatomy
  - Imaging analysis

- AVSD:
  - Determinants of a successful 2 ventricle repair

- Critical Left Heart Obstruction [LVOTO]
  - Arch obstruction after Norwood
  - Baseline Echo correlation with outcomes
Critical Left Heart Obstruction [LVOTO]
Interstage Intervention for Arch Obstruction After Norwood

- We sought to determine the prevalence and risk factors

- 593 patients underwent Norwood, 2005 – 2017

- 119 (20%) had interstage arch interventions

- We utilized competing risks analysis to first intervention during the interstage period following Norwood
Arch Interventions After Norwood and Before or during Stage II Procedure

Arch interventions
n=151
119 patients

Catheter
n=115
(21 at pre-stage II cath)
100 patients

Balloons Dilation
n=112

Stenting of Coarctation
n=4

Isolated Arch Repair
n=14

Concurrent with SVCPA
n=17

Surgical
n=36
33 patients

Concurrent with HTX
n=3

Concurrent with Yasui
n=2
Competing Risk Analysis to First Event after Norwood (N=593)

Prevalence of End State (%) vs Months After Norwood:
- No Event
- SVCPA without Arch Int (58%)
- Arch Int (19%)
- HTX or Death (18%)
- SVCPA+Arch (2%)
- 2V Repair (1%)

Graph shows the prevalence of different end states over time after Norwood surgery.
Arch Obstruction Post-Norwood

• Risk factors:
  • Decreased Risk:
    • Interdigitating distal arch repair
  • Increased Risk:
    • PA-Aorta connection without patch (Brawn type anastomosis)
    • Longer cardiopulmonary bypass time
    • Presence of sinusoids on pre-op echo
Interdigitating Repair
Institutional Variability

• Proportion of patients with arch re-intervention:
  Range: 0 – 46%

• Pre-Intervention Gradient for Catheter arch intervention
  Median: 20.0mmHg (2 to 62)
Conclusions

• There is a high risk of arch obstruction during the interstage period after Norwood.

• Interdigitating repair of the distal aortic anastomosis is protective against arch obstruction.

• A standardized definition of arch obstruction is needed.
Critical Left Heart Obstruction

• Abstract submitted to AATS Annual Meeting

Intervention for Arch Obstruction in the Interstage Period Following Norwood: Prevalence, Risk Factors, and Practice Variability

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Questions for Discussion

• How do you currently track which patients are eligible for CHSS studies at your institution?
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• How do you currently track which patients are eligible for CHSS studies at your institution?

• What do you find to be the most difficult part of enrolling a patient in a CHSS study?
Future Projects

• Critical Aortic Stenosis
  • Late functional health outcomes

• Further analysis of arch obstruction beyond stage II procedure
Remote Data Abstraction

• Future of Remote Data Abstraction

  • REDCAP forms

  • Forms populated with data that is already abstracted at the Data Center

  • More centers?
THANK YOU!!!

• Without you, there would be no CHSS Data Center!

• Your work enables life changing research that would not be possible without the coordination of all of your centers

• We find answers to tough questions about rare diseases and YOU make it possible!