Evaluating Patient Outcomes and Access to Care in Aortic Surgery Based on Ethnicity and Social Vulnerability

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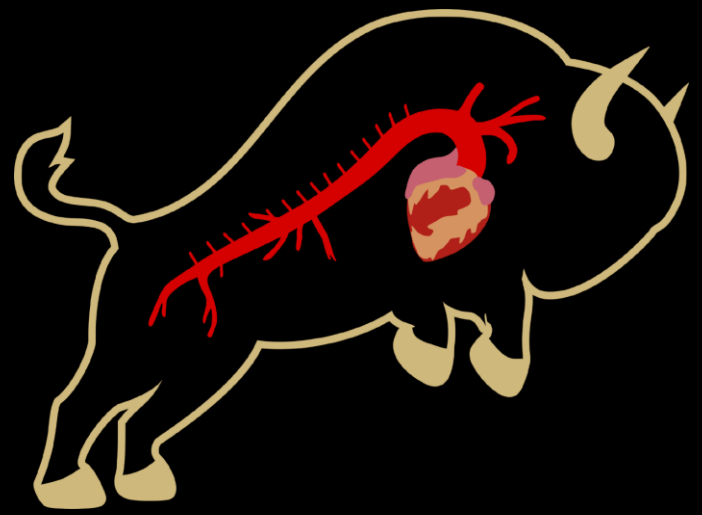
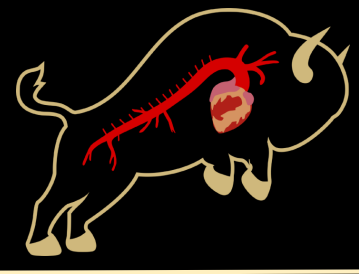
No disclosures

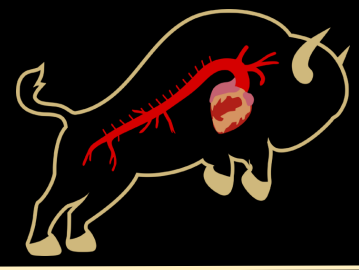


Introduction



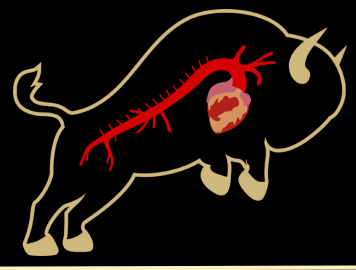
- Previously we demonstrated under-represented groups more likely to present emergently, with dissection pathology
- CDC Social Vulnerability Index (SVI) is increasingly used to quantify social vulnerability
  - High SVI (more socially vulnerable) associated with adverse outcomes in surgery, but has not been applied to aortic surgery
- Integrating both ethnicity & SVI may provide insight into how social vulnerability manifests in different ethnicities and provide a more tailored approach to expanding care

Aim



Identify impact of both ethnicity and social vulnerability on presentation, outcomes, and subsequent follow-up after aortic arch surgery

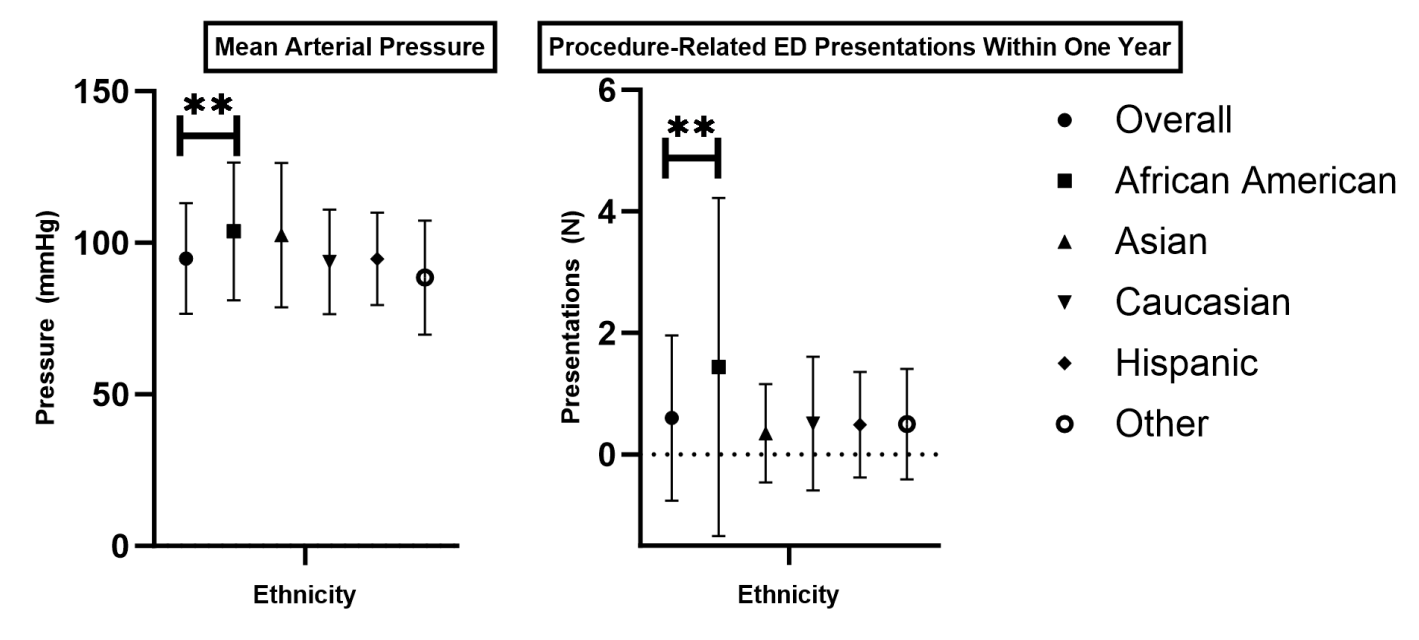
Methods



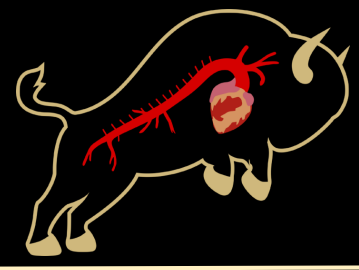
- Single-institution prospectively-maintained aortic database of patients who underwent aortic arch surgery from 2011-2022, in total 837 patients included
- Stratify patients into cohorts based on:
  - Ethnicity alone (Caucasian, African American, Hispanic, Asian, Other)
  - SVI alone (High SVI ≥75, “Normal” SVI<75)
    - SVI determined by exact patient residential address
  - Both ethnicity & SVI (e.g. Caucasian, SVI ≥75, or <75)
- Multi-group comparison between each cohort to identify significant pre-operative, operative and post-operative differences
  - Additional multi-comparisons relative to overall group, in addition to most prevalent group (Caucasian)
  - 92 pre-operative, operative, or post-operative variables analyzed

Results: Ethnicity Alone

- Consistent with prior analysis:
  - Patient cohort not consistent with city demographics, under-representation of non-Caucasian ethnicities
  - Higher rates of dissection for African Americans
  - More procedural urgency, more extensive arch replacement, longer intraoperative times for African Americans and Asians
  - No significant difference for in-hospital morbidity and mortality
- Additions to prior analysis:
  - Higher baseline mean arterial pressure (MAP) for African Americans ($p<0.001$)
  - Greater ED utilization by African Americans ($p<0.001$)
    - No difference in follow-up rates with cardiovascular provider



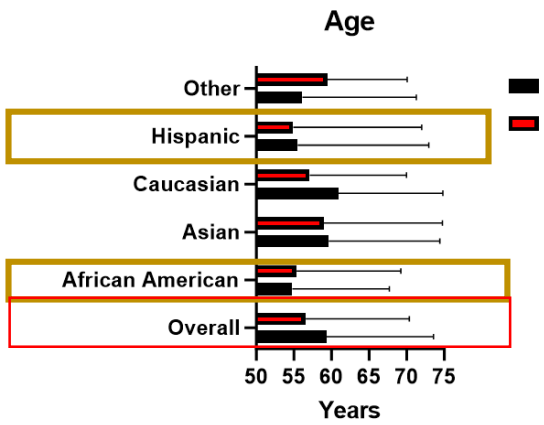
Results: SVI Alone

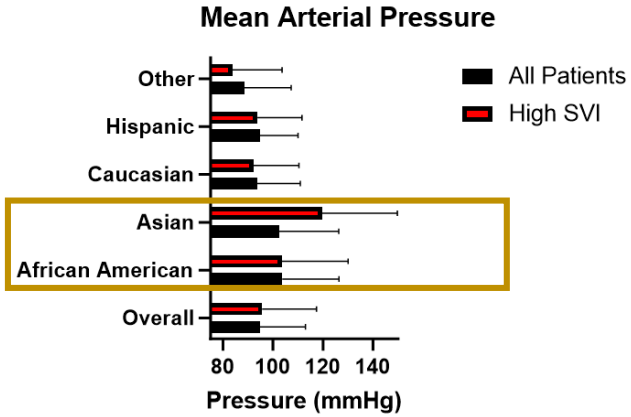


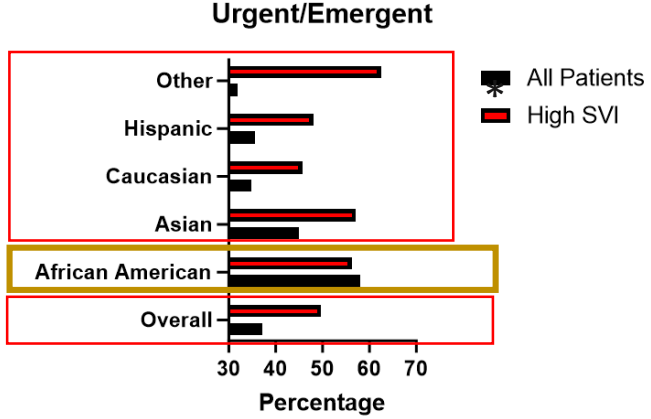
- Of 837 patients, 155 (18.5%) in high SVI group
- High SVI patients more likely to:
  - Present younger, have a history of smoking
  - Present urgently or emergently (approximately half of the cohort)
  - Require total arch replacement, thus requiring longer operative times
  - Required post-operative mechanical circulatory support
  - Utilize the emergency department post-discharge
- No significant differences in other morbidity or mortality

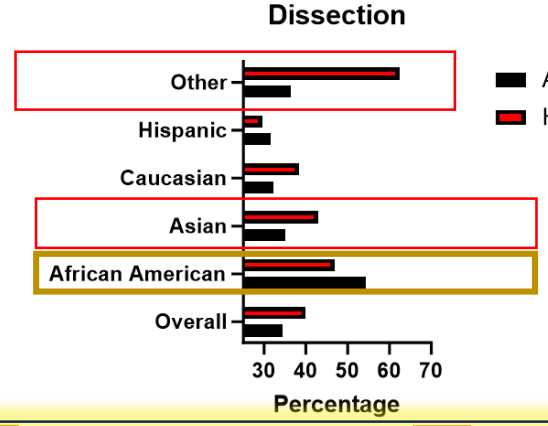
Variable	Overall	SVI < 75%	SVI ≥ 75%	p-value
Totals	837	682 (81.5%)	155 (18.5%)	N/A
Age	59.36 +/- 14.23	59.99 +/- 14.26	56.57 +/- 13.80	0.007
Smoking	203 (24.3%)	152 (22.3%)	51 (32.9%)	0.007
Elective	525 (62.7%)	447 (65.5%)	78 (50.3%)	0.001
Urgent Emergent	312 (37.3%)	235 (34.5%)	77 (49.7%)	0.001
Hemiarch	602 (71.9%)	501 (73.5%)	101 (65.2%)	0.048
Total Arch	235 (28.1%)	181 (26.5%)	54 (34.8%)	0.048
Nadir Bladder Temperature	26.08 +/- 2.69	26.25 +/- 2.59	25.33 +/- 2.97	<0.001
CPB Time	175.78 +/- 73.86	172.58 +/- 73.23	189.87 +/- 75.20	0.008
Aortic Cross-Clamp Time	107.73 +/- 54.84	105.95 +/- 53.65	115.58 +/- 59.34	0.048
Circulatory Arrest Time	17.67 +/- 14.07	16.87 +/- 13.23	21.24 +/- 16.88	0.001
Need for Mechanical Circulatory Support	47 (5.6%)	32 (4.7%)	15 (9.7%)	0.025
Post-Discharge CV or Procedure Related ED Presentations in 1 Year	0.60 +/- 1.36	0.53 +/- 1.14	0.88 +/- 2.04	0.003

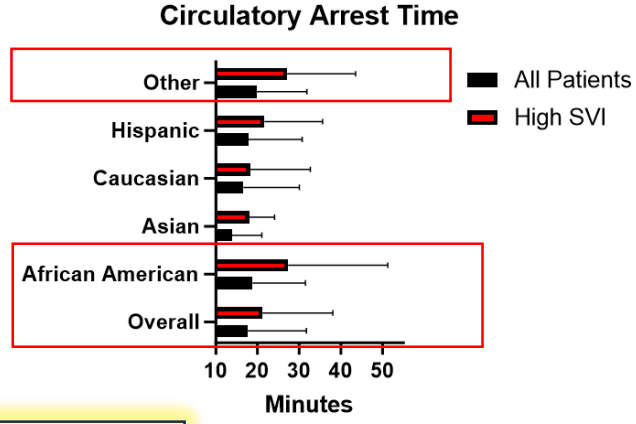
Results: Ethnicity & SVI

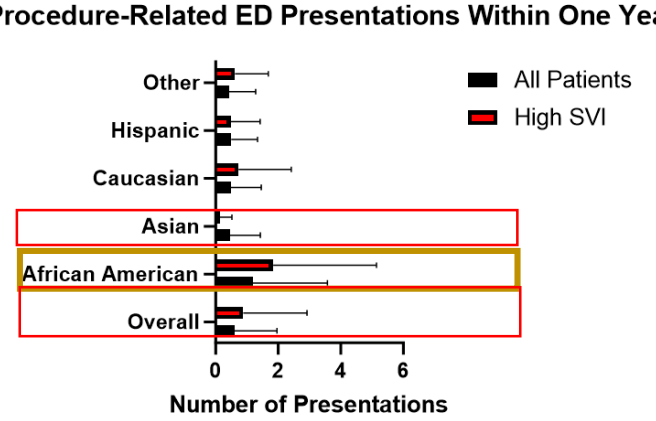






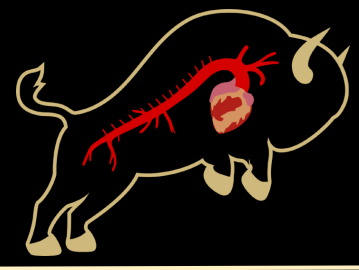






Difference Regardless of SVI Difference at high SVI only

Conclusion



- Clear lack of access to care exists for under-represented groups
  - Despite this, post-operative morbidity and mortality are similar
- Ethnicity plays an important role in presentation
  - Age, control of baseline comorbidities, urgency of procedure, extent of arch replacement
- High SVI groups are vulnerable regardless of ethnicity
  - However, social vulnerability manifests differently in certain ethnicities in approach to care
- Approaches to expanding access needs to be applied at all levels of care
  - Tailored approach is needed that is considerate of not just social vulnerability, but also culturally-conscious

Questions???