Outcome of Traumatic Aortic Rupture: A 14-Year Experience

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Background

• Traumatic aortic ruptures account for 16% to 23% of all motor vehicle fatalities; approximately 60% to 85% of patients die at the scene of the accident
• Patients who survive the traumatic event and reach the hospital are treated with different strategies depending on physiologic status

Three treatment options for severe aortic injury

• Surgery with open technique
• Thoracic Endovascular Aortic Repair (TEVAR)
• Medical management of injury without surgery

*TEVAR technique was not available during this study period

Methods

• Retrospectively reviewed LVHN trauma database from 1994 to 2008
• 70 patients were admitted with severe aortic trauma
• Separated into three groups based on treatment
  • Cardiopulmonary or left heart bypass
  • Clamp-and-sew
  • Medically managed
• 10 patients DOA or rupture prior to planned surgery were excluded from analysis

Results

• 51 (72.9%) patients underwent surgery
  • 45 (88%) were operated on utilizing cardiopulmonary or left heart bypass with average bypass time of 67 min.
  • 6 (12%) were operated on using clamp-and-sew method with average clamp time of 36 min
• Paralysis rate was 6.6% (3) for perfusion cohort, 33.3% (2) for clamp-and-sew cohort
• In-hospital mortality rates were similar (17.78% vs. 16.67%)
• Non-operative patient in-house mortality rate was 11.11%
• Aortic trauma cohort presented with worse GCS (11.13 vs. 13.87), ISS (38.73 vs. 10.00), TRISS (0.74 vs. 0.95) compared to general trauma cohort

Conclusion

• Surgery for traumatic aortic rupture with cardiopulmonary or left heart bypass offered excellent mortality and paralysis rates
• Traumatic aortic patients presented with worse physiologic profiles, which likely contributed to mortalities and complications
• Properly selected medically managed patients have reasonable outcome 24 hours after hospital admission

Glasgow Coma Scale

Injury Severity Score

Trauma Score - Injury Severity Score

Surgical Complications

Patients Total Number of Patients Paraplegia Percent Affected

Group A 45 3 6.67%
Group B 6 2 33.3%