HOSPITAL UTILIZATION IN PATIENTS WITH EBSTEIN’S ANOMALY

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**BACKGROUND**

- Ebstein’s anomaly (EA) is a rare congenital heart disorder affecting the tricuspid valve in approximately one out of every 200,000 live births.\(^3\)
- Though no definite risk factors have been identified, several conditions are associated with EA.
  - Genetic factors: Familial history of defects\(^1\)\(^2\)
  - Environmental factors: Mother’s exposure to lithium or benzodiazepines\(^1\)\(^2\)
- Treatment for EA is focused on reducing symptoms and avoiding disease progression to complications like heart failure or arrhythmia.\(^1\)\(^2\)
- Diagnosis for severe EA often occurs at birth or early childhood however in some cases worsens over time and symptoms develop in adulthood.\(^1\)\(^2\)
- Undiagnosed patients may present in the hospital with symptoms of cyanosis, heart murmur, and/or dyspnea.\(^1\)\(^2\)
- Children with EA often require surgical interventions for anomaly of the tricuspid valve complexities and Ebstein’s anomaly in adults. The Thoracic And Cardiovascular Surgeon, 20(2), 102-106.
- More than 80% of the visits occurred in the hospital setting however the average length of stay for hospitalizations is more than 10 days.
- Risk of mortality can increase significantly for patients with more complex comorbidity profiles.
- Procedures in this population are primarily focused on diagnosis and repair of valves and major vessels of the heart.\(^1\)\(^2\)
- Further research is required to understand the impact of interventions/treatments on mitigating the progress of this disease.

**OBJECTIVE**

The objective of this analysis was to examine hospital-based utilization in patients with EA.

**METHODS**

**Study Design**

A retrospective cross-sectional study was conducted on EA discharges in the MedAssets health system data for inpatient and hospital-based outpatient visits between January 2009 and December 2014. Data Source

Data were obtained from the MedAssets health system database.

**Measures**

- Demographic and clinical characteristics (e.g., age, gender, clinical comorbidities)
- Clinical comorbidities identified using the Deyo-Marphy comorbidity index.
- Measures of resource utilization included length of stay (LOS) and same hospital readmissions.
- In-hospital mortality

**Statistical Analysis**

- All statistical tests were conducted using SAS version 9.3. Alpha was set at 0.05 for tests of significance.
- Multivariate logistic regression was used to identify significant drivers for in-hospital mortality and readmissions.

**RESULTS**

**Patient Demographics**

- The sample population included 4,286 visits representing 2,047 individual patients.
- 81.0% of hospital visits occurred in the outpatient setting.
- As shown in Table 1 the mean age of the sample was 21.6 years with 55.7% under the age of 18 and 56.0% female.

**Clinical Comorbidities**

- Congestive heart failure (CHF; 29.9%), chronic pulmonary disease (11.3%), and renal disease (6.0%) were the most prevalent comorbidities (Table 3).

**Hospital Characteristics**

- More than 80% of the visits occurred in teaching facilities with 300 or more beds.
- Geographically the largest percentage of patients were from the South Atlantic (32.2%) and Pacific (31.9%) regions.
- Table 2 contains detailed hospital characteristics.

**Procedures and Treatments**

- Valve and sepsa operations (15.6%) and heart catheterization (11.9%) were the most frequent inpatient procedures (Figure 1).
- The most common outpatient procedures were diagnostic (10.3%) in nature (Figure 2).

**Mortality and Readmissions**

- 5.0% of all inpatient admissions expired during the hospital stay and 8.5% were readmitted to the same facility within 30 days.
- CHF (OR: 2.26; CI: 1.10, 5.12), electrolyte disorders (OR: 3.11 CI: 1.49, 6.83), and cardiac dysrhythmia (OR: 2.63 CI: 1.22, 5.62) were associated with increased in-hospital mortality (Figure 4).
- Only CHF (OR: 2.64; CI: 1.46, 4.68) was associated with an increase in same-hospital readmissions.

**SUMMARY**

- Although EA patients are relatively young, when hospitalized these patients consume a significant amount of healthcare resources.
- Less than 20% of overall hospital utilization occurs in the inpatient setting however the average length of stay for hospitalizations is more than 10 days.
- Risk of mortality can increase significantly for patients with more complex comorbidity profiles.
- Procedures in this population are primarily focused on diagnosis and repair of valves and major vessels of the heart.
- Further research is required to understand the impact of interventions/treatments on mitigating the progress of this disease.

**REFERENCES**


**STUDY LIMITATIONS**

- These data represent only utilization within the hospital setting.

**ACKNOWLEDGMENTS**

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