

Retrospective Analysis for Incidence of Takotsubo Cardiomyopathy Compared Against Insurance Coverage Type

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Background

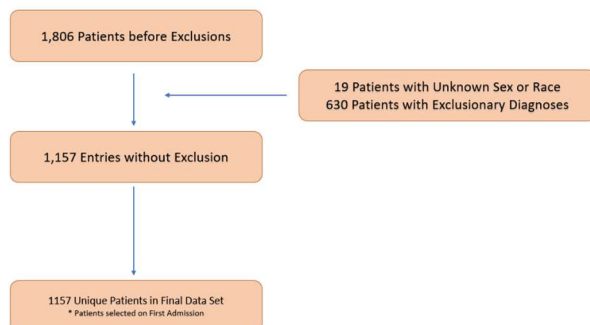
- Takotsubo cardiomyopathy (TTS) is a non-ischemic reversible left ventricular dysfunction characterized by apical wall ballooning, and is associated with extreme stress triggers.
- Limited data demonstrating association between **chronic stress and development of TTS**.
- There is **no data regarding socioeconomic determinants of health and effects on patients with TTS**

Objective

- The purpose of this study is to investigate the impact of health insurance status and readmission rates in patients with TTS.

Methods

- Data was obtained from the Healthcare Corporation of America (HCA) database from 2020 to 2021.
- Insurance categories:** Medicaid, Medicare, Private, Other government, None
- Primary outcome of interest: Hospital readmission within 90 days with primary diagnosis of TTS.**
- Secondary outcomes:** In-hospital mortality of any cause, Hospital length of stay.
- After exclusion criteria, we identified **1157** patients with TTS within the timeframe specified.
- Mean age was 63.4±11.32, mean length of stay was 2.98±4.35.
- 87%** of patients were insured, **13%** were uninsured.
- The majority of patients that were insured were **Medicare** (58.3%). 37% of patients in the dataset were readmitted to the hospital in 90 days.



This research was supported (in whole or in part) by HCA Healthcare and/or an HCA Healthcare affiliated entity. The views expressed in this publication represent those of the author(s) and do not necessarily represent the official views of HCA Healthcare or any of its affiliated entities.

Results

- There was a **significant** association between insurance subtype and 90-day readmission to the hospital for patients with TTS. Patients with private insurance are admitted to the hospital less in patients with TTS. (Table 1)

| Insurance subtype, primary outcome 90-day readmissions. | | | |
|---|-----------|-----------|-------|
| | No | Yes | Total |
| Gov't (other) | 27(3.7%) | 1(0.23%) | 28 |
| Medicaid | 45(3.9%) | 43(3.7%) | 88 |
| Medicare | 383 (33%) | 291 (25%) | 674 |
| Private | 171(15%) | 55(4.7%) | 226 |
| None | 97(8.4%) | 44(3.8%) | 141 |
| Total | 723 | 434 | 1157 |

Table 1. Insurance compared to rates of readmission in 90 days. P<0.01 by Fisher's Exact Test

- There is **no association** between insurance subtype and any-cause mortality in TTS patients (Table 2).

| Insurance subtype, primary outcome any-cause mortality. | | | |
|---|------------|----------|-------|
| | Yes | No | Total |
| Gov't (other) | 28(2.4%) | 0 | 28 |
| Medicaid | 82(7%) | 6 (0.5%) | 88 |
| Medicare | 651(56%) | 23(2%) | 674 |
| Private | 140(12.1%) | 1(0.1%) | 141 |
| None | 219(19%) | 7(0.61%) | 226 |
| Total | 1120 | 37 | 1157 |

Table 1. Insurance compared to rates of readmission in 90 days. P>0.05 by Fisher's Exact Test

- Controlling for age, sex, race, CAD, alcohol and drug use, we found **no significant association** between insurance subtypes and readmission within 90 days among patients with TTS.
- Controlling for age, sex, race, CAD, alcohol and drug use, we found **no significant association** between insurance subtypes and mortality or hospital length of stay among patients with TTS.

Discussion

- Patients with **private insurance** were found to have decreased rates of hospitalization in 90 days compared to patients with other insurance subtypes
 - Comprehensive coverage may enable better continuity of care
 - Previous literature - poor insurance and increase of cardiovascular risk factors and CV mortality [1]
 - Possible negative association between other possible factors - patients with private insurance are less likely to have other CV risk factors, independent of insurance
- There is **no association** between insurance subtypes and all-cause mortality or hospitalization length of stay in TTS patients.
 - It is possible that **severity** of the **initial** TTS event, comorbidities, or the effectiveness of acute medical interventions, exert a more substantial influence on mortality and hospital stay
- Limitations: Discrete categorization of insurance variables limits granularity of insurance status – high deductible/low payout insurance plans may not be adequately visualized.
 - Insurance may also be a proxy for income – higher incomes are more likely to have dual insurance or higher-quality insurance
 - Associations between chronic stress and development of TTS noted, as well as between anxiety/mood disorders and TTS [2,3] - poor insurance may predispose to development of TTS that is not captured in this dataset.

Conclusion

- Insurance status was found to be associated with incidence of TTS
- Controlling for confounding variables, we found no statistically significant association.
- Insurance subtype may be associated with presence or severity of one or more of these confounding variables, which in turn may worsen outcomes among patients with TTS.

References

- Brooks EL, Preis SR, Hwang S-J, et al. Health Insurance and Cardiovascular Disease Risk Factors. The American Journal of Medicine. 2010;123(8):741-747.
- El-Sayed AM, Brinjikji W, Salka S. Demographic and co-morbid predictors of stress (takotsubo) cardiomyopathy. The American Journal of Cardiology. 2012;110(9):1368-1372.
- Wallström S, Ulin K, Määttä S, et al. Impact of long-term stress in Takotsubo syndrome: Experience of patients. Eur J Cardiovasc Nurs. 2016;15(7):522-528.