



Impact of Hypothyroidism in Hospitalizations for Transcatheter Mitral Valve Repair

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Background

Comparative outcomes of hypothyroidism in hospitalizations for transcatheter mitral valve repair (TMVR) with MitraClip have not been reported. We aimed to study the clinical outcomes in these hospitalizations.

Methods

We conducted a retrospective analysis of hospitalizations for TMVR from the National Inpatient Sample (NIS) between 2010 and 2014. Billing codes (International classification of diseases, 9th revision) were used to identify the target population. The primary outcome was inpatient mortality and secondary outcomes were the impact of hypothyroidism on complications associated with TMVR hospitalizations.

Results

A total of 3020 hospitalizations with TMVR were identified. Hypothyroidism was listed as a secondary diagnosis in 15.3% of these hospitalizations. The mean ages were 76.8 years and 72.5 years in hospitalizations with and without hypothyroidism respectively. Hospitalizations with hypothyroidism were more likely to be female (52.38% vs. 38.98%; p=0.01). Inpatient mortality was similar between the groups (OR 0.67, CI 0.11- 4.25; p=0.673). There was no statistically significant difference in the rates of cardiogenic shock (OR 0.28, CI 0.04-1.75; p=0.172), acute kidney injury (OR 0.70, CI 0.34-1.42; p=0.319), or invasive mechanical ventilation (OR 0.88, CI 0.33-2.36; p=0.804) between the groups. There was no significant difference between cost and length of stay between the groups as shown in Table 1.

Clinical Implications:

Transcatheter mitral valve repair (TMVR) in hospitalizations with hypothyroidism is not associated with adverse outcomes, increased cost, or increased length of stay. Retrospective data does not imply causation. More prospective studies are needed to evaluate the association of hypothyroidism and TMVR outcomes.

Conclusion

Hypothyroidism did not adversely affect clinical outcomes in patients undergoing TMVR in our cohort.

Variables	Without hypothyroidism (%) (Weighted n=2555)	With hypothyroidism (%) (Weighted n=465)	P value
Age (mean [S.E.]) years on admission	72.5 (0.71)	76.8 (1.25)	<0.001
Female	38.98	52.38	0.01
Race			0.21
White	75.55	77.57	
Black	7.02	2.23	
Others	17.43	20.2	
Comorbidities			
Chronic pulmonary disease	22.74	18.95	0.42
Diabetes uncomplicated	22.46	16.97	0.23
Diabetes with complications	4.06	4.3	0.91
Hypertension	66.72	76.62	0.06
Obesity	7.6	8.58	0.75
Congestive heart failure	2.13	2.02	0.94
Peripheral vascular disease	9.74	11.69	0.52
Renal failure	34.7	45.95	0.04
Liver disease	4.45	1.07	0.12
Neurological disorders	3.46	3.22	0.9
Pulmonary circulation disorders	1.57	2.15	0.68
Hypothyroidism	0.2	0	0.67
Coagulopathy	17.21	18.24	0.81
Valvular disease	2.72	2.02	0.69
Solid tumor without metastasis	1.76	0	0.17
Metastatic cancer	0.2	0	0.67
Alcohol abuse	1.76	0	0.22
Drug abuse	0.95	1.07	0.91
Previous myocardial infarction	12.45	14.92	0.54
Deficiency anemia	21.01	24.34	0.47
Hospital Location			0.65
Rural	0.8	0	
Urban non-teaching	13.74	12.52	
Urban teaching	85.46	87.48	
Discharge Disposition			0.5
Routine/Self care	59.24	54.18	
Short-term hospital	1.57	1.07	
Another type of facility	13.01	14.79	
Home healthcare	22.91	26.72	
Died at discharge	3.08	2.15	0.6
LOS (mean [S.E.]) days	7.84 (0.57)	6.28 (0.87)	0.15
Inflation-adjusted Cost, US \$ (mean [S.E.])	54347.4 (2450.5)	49596 (2663.8)	0.83

Table 1: Baseline characteristics and outcomes of MitraClip hospitalizations with and without hypothyroidism