

A Propensity Matched Study in Foley Catheter Inserted Patients with Acute Heart Failure

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Background: Overutilization of indwelling urethral catheters (IUCs) in hospitalized patients has been stressed for high rates of urinary complications in previous studies. Risk benefit for such practices have not been evaluated until presently. **Design & Method:** We retrospectively reviewed a single center tertiary care admission of 329 patients, initially presenting to the ER with acute heart failure(AHF), whom were alert, non-intubated, and over 18 years of age. Propensity scores for IUC insertion were used to assemble pairs of patients with and without IUC insertion to correct imbalances between both groups. **Results:** Of 329 patients, IUCs were inserted in 200 patients (61%). After propensity score matching, a total of 204 patients (age 72±12, 95 males) with 102 patients in each group, were analyzed. Hospital stay length (13±12 vs. 9±8 days) and urinary complications (15 vs 4%) were significantly higher in the IUC inserted group ($p < 0.05$ for all), while 1 year mortality (HR, 1.114; CI 0.542 - 2.703; $p = 0.541$), stroke (HR, 1.55; CI 0.450 - 6.366; $p = 0.486$), rehospitalization (HR, 1.211; CI 0.412 - 1.639; $p = 0.578$), and major adverse cardiac events (HR, 0.994; CI 0.809 - 1.633; $p = 0.436$) were not significantly different in both groups. **Conclusions:** The insertion of IUCs in patients with AHF is associated with prolonged hospital stay length and increased urinary complications, while no one-year outcome benefit is observed.

Table 2. In hospital and one year outcome in patients with/without indwelling urethral catheterization before and after propensity-score matching

	Before matching			After matching		
	Indwelling urinary catheter		p value	Indwelling urinary catheter		p value
	Yes (n=200)	No (n=128)		Yes (n=102)	No (n=102)	
ICU admission, n(%)	21 (11)	9 (7)	0.331	10 (9)	7 (7)	0.448
Urinary complications	32 (16)	4 (3)	<0.001*	17 (17)	4 (4)	0.014*
Hematuria	6 (3)	0 (0)	0.085	3 (3)	0 (0)	0.498
Voiding difficulty	13 (7)	2 (2)	0.055	7 (7)	2 (2)	0.180
CAUTI or HAUTI	14 (7)	2 (2)	0.033*	7 (7)	2 (2)	0.180
In-hospital stay length (days)	13±12	9±8	0.001*	13±13	9±7	0.014*
In-hospital mortality, n(%)	8 (8)	5 (5)	0.569	5 (5)	5 (5)	1.000
One year re-hospitalization, n(%)	39 (20)	22 (17)	0.664	18 (18)	17 (17)	1.000
One year stroke, n(%)	11 (6)	7 (6)	1.00	5 (5)	6 (6)	1.000
One year mortality, n(%)	33 (16)	13 (10)	0.143	13 (13)	11 (11)	0.828
One year MACE, n(%)	128 (64)	75 (60)	0.416	65 (64)	60 (59)	0.565

Electromagnetic Interference And Noise In The Patients With CIEDs Undergoing Chest Physiotherapy

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Background: Chest physiotherapy is the non-pharmacologic airway clearance therapy that vibrates the chest wall of the patient to facilitate sputum excretion. During the course of chest physiotherapy, vibration of chest wall has the possibility of causing electromagnetic noise and/or lead problem in the patients with cardiac implantable electronic devices (CIEDs). The purpose of the present study was to prospectively confirm the effect and safety of chest physiotherapy in the patients with CIEDs. **Methods:** A total 40 volunteers with CIEDs were recruited at outpatient clinic of the Samsung Medical Center. There were 25 volunteers with bipolar pacemaker and 15 volunteers with implantable cardioverter-defibrillator (ICD). The volunteers were participated in two-phase study protocol including application of mechanical lung vibrator and high-frequency chest wall oscillation (HFCWO) with variable frequencies and intensities after routine check-up of device. During the each phase, real-time surface electrocardiogram and intra-cardiac electrogram were recorded simultaneously to detect EMI and noise of CIEDs. Also after the end of each phase, we measured lead profile repeatedly to confirm the lead stability. **Results:** None of the bipolar pacemakers or ICDs showed any kind of EMI or noise on intra-cardiac electrogram. Also, lead profiles were not significantly altered in the course of each phase. However, among 9 rate responsive pacemaker, 5 pacemakers reported increase of pacing rate to maximal tracking rate in response to vibration of HFCWO. **Conclusions:** According to our study, chest physiotherapy could be applied to the patients with CIEDs without concerning about malfunction of CIEDs. But, we suggested that rate responsive mode should be turned off in the patient with pacemaker during the chest physiotherapy using HFCWO to prevent iatrogenic tachycardia.