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Portable bladder ultrasound reduces incidence of urinary tract infection and shortens length of hospital stay in patients with acute ischemic strokeShu-Chuan Chen¹ and Shinn-Kuang Lin^{1,2}¹Buddhist Tzu Chi Medical Foundation, Taiwan²Tzu Chi University, Taiwan

Background & Aim: Urinary Tract Infection (UTI) during Acute Ischemic Stroke (AIS) is associated with longer length of hospital stay (LOS) and poorer functional outcomes. Portable bladder ultrasound (PBU) has been applied to stroke in-patients for measuring Post-Void Residual Urine Volume (PVRV) since April 2014 in this hospital.

Methods: We retrospectively reviewed in-patients with AIS during the period January 2011 to February 2017. Patients were stratified into Group-1 (PBU not available) and Group-2 (PBU available) by the split date before or after 9 April 2014. PBU was carried out by trained staff nurses under relatively slack criteria for patients admitted within one week with impaired consciousness and/or dependent ambulation.

Results: A total of 1,928 patients were enrolled with 1,104 patients in Group-1 and 824 patients in Group-2. About 109 patients (5.7%) had UTI and 901 patients (46.7%) had poorer outcome (modified Rankin Scale ≥ 3). Multivariate logistic regression analysis revealed factors influencing UTI were: Female gender, age ≥ 75 years, admission National Institute of Health Stroke Scale (NIHSS) score ≥ 5 , NIHSS conscious score ≥ 1 , NIHSS leg score ≥ 2 and Foley catheterization during hospitalization. Factors influencing poorer outcome were similar to those of UTI, but further comprised UTI. C-statistics for detection of UTI and poorer outcome were 0.864 and 0.859, respectively, for model-fitting including significant factors in logistic regression. There were 31% patients in Group-2 received PBU. ROC curve analysis found an optimal cut-point of PVRV of 100 ml for prediction of UTI. Compared to Group-1, patients in Group-2 had higher incidence of Foley catheterization (13.1% vs. 8.2%), lower incidence of UTI (4.0% vs. 6.9%) and shorter duration of LOS (11.9 days vs. 13.6 days).

Conclusion: PBU reduced incidence of UTI and shortened LOS. We recommend routine PBU for AIS patients with high risk of UTI, including admission NIHSS score ≥ 5 , NIHSS leg score ≥ 2 , NIHSS conscious score ≥ 1 , age ≥ 75 years and female gender.

Biography

Shu-Chuan Chen is the Head Nurse of Stroke Ward in Taipei Tzu Chi Hospital, Taiwan. She is specialized in inpatient care of neurological disorders. She has established several interventions and clinical pathways in stroke center to improve the quality of nursing care and inpatient safety, such as convenient fall-prevention devices, portable bed-side multimedia educational system and portable bladder ultrasound scanner for detecting post-void urinary volume.

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