中文題目：超長住院後非計劃性返急診病患對檢傷分類，再住院及死亡率之影響

英文題目：Unscheduled Emergency Department Visits after Hospital Discharge: Impact on Triage, Readmission, and Mortality

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INTRODUCTION

The increasing demand of emergency care has been an important public and academic issue in many countries. Unscheduled emergency department visits (UEDV) shortly after hospital discharge may present a significant additional workload to emergency department (ED) as well as harmful patient safety and satisfaction. However, the frequency and cost of UEDV after hospital discharge is widely unknown. Therefore, UEDV after hospital discharge may indicate a potential area of improvement in patient satisfaction and potential cost-saving for the health care system.

The UEDV is defined as ED discharge to ED readmission neglecting those visits after hospital discharge. Moreover, hospital readmissions measure only inpatient-to-inpatient events and omitting ED visits. A comprehensive approach to understanding UEDV after hospital discharge would be needed to analyze ED resource usage and prognosis of ED patients.

The primary objective of this study is to assess the frequency of ED use within 72- hour after adult medical inpatient discharge at an urban teaching hospital. Secondary objectives are to characterize patients within 72-hour ED visits and determine subsequent triage usage and disposition of patients, including mortality, from these ED visits.

MATERIALS AND METHODS

This was a retrospective cohort study of adult medical inpatients discharged from the hospital, using administrative data from a single, urban, regional teaching hospital. The hospital is a 948 inpatient beds hospital located in southwestern Taiwan. From 2013 to 2017, it had 51,852 inpatient discharges and 166,374 ED visits, with 3.9% of those visits leading to admission.

Patients linked to each discharge were followed forward from the discharge date to determine whether they had ED visit within the subsequent 72-hour. Records with incomplete data were included unless there were insufficient data to determine time between presentations.

The inpatient database was used to collect the following variables: personal identification number, visit type, sex, age, discharge status, admission day, discharge day, length of stay, and principal diagnosis. Date fields collected from the ED database included personal identification number, triage day, disposition code, and disposition diagnosis. Records from both databases were linked through patient medical record numbers by the data warehouse staff. Chart review was supervised by an experience medical doctor and subjected to review in a health quality comittee monthly. The study was given to research personnel as visit-level data.

The primary outcome was the frequency with which an adult medical inpatient discharge was linked to ED utilization within the subsequent 72 hours. Secondary outcomes were patient- and visit-level characteristics associated with 72-hour ED utilization and the disposition of patients who returned to the ED within 72 hours of discharge.

We used data spanning a 5-year period of hospital activity to estimate our primary outcome. In inpatient database, inpatient length of stay (LOS) fixed at 30 days was chosen to define a prolonged hospital stay. Applying the prolonged hospital stay, adult medical patients were separated (more than 30-day, and within 30-day). In ED database, each ED visit within the subsequent 72-hour period was counted as a return visit. The return visits were separated by ED triage scale (from 1 to 5), and disposition (admitted to the hospital, discharged from ED, died in the ED, and unknown). If a patient went to the ED and was admitted, the primary event of ED utilization within 72 hours of previous discharge had occurred.

We report summary statistics characterizing our overall study population, as well as the inpatient populations fixed at 30 days with 72-hour ED visits after discharge. All analyses were performed with SPSS software.

RESULTS

From January 1, 2013, to December 31, 2017, there were 51,852 hospital discharge and 166,374 ED visits. Nearly one twenty-fifth (n=2,101; 3.9%) of these discharges led to ED visit within the subsequent 72 hours, and 145 of them (6.9%) discharged after 30 days of hospitalization.

There were 2,101 ED visits from January 1, 2013, to December 31, 2017, that were linked to a hospital discharge within 72 hours. Patients with a prolonged hospital stay at level 1 of ED Triage Scale had higher frequency than non-prolonged hospital stay (20% versus 12.8%). Approximately half of ED visits (n=1,059; 50.4%) led to subsequent re-hospitalization. All remaining visits (n=1,042; 49.6%) led to disposition qualifying as “not admitted” (includes discharge and left against medical advice), except for 53 visits that ended with patient death. Those ED visits with a prolonged hospital stay tend to have higher mortality (6.9% versus 2.2%) and ICU re-admitted rate (12.4% versus 6.1%). Among patients who returned for ED care, the median time to the ED visit was same (2.1 days) for both patients who were hospitalized more than 30-day and within 30-day.

The mean age of patients revisiting ED within 72 hours is 69.4 ±15.5 years. Patients with ED visits after a prolonged hospital stay tend to be younger (20.7% versus 11.9%) at <50 years group. In addition, these patient with ED visits were more likely to be men (61.3% versus 38.7%).

Patients with ED visits after a prolonged hospital stay tended to have cancer (35.2% versus 24.2%) and psychiatric disease (11.7% versus 1.7%). At ER Triage Scale, cancer has higher index rate at level 1 (18.4%), 2 (7.5%), and 3 (12.1%); respiratory disease at level 1 (13.8%); gastrointestinal disease at level 1 (16.7%); renal disease at level 1 (14.3%) and 2 (10.8%); neural disease at level 1 (7.1%); psychiatric disease at level 2 (100%), 3 (47.1%), and 4 (57.1); and, metabolic and endocrine disease at level 1 (33.3%). At ED disposition, cancer has higher index rate at mortality (50.0%) and admission (ICU, 15.0% and ward, 13.6%); respiratory disease at mortality (37.5%); gastrointestinal disease at mortality (33.3%) and ICU admission (23.5%); neurological disease at ICU admission (42.9%); psychiatric disease at discharge (53.8%), metabolic and endocrine disease at ICU admission (25.0%).

CONCLUSION

Early ED visits after prolonged hospital stay had higher severity, re-admission, and ED mortality, which may differ according to the discharge diagnosis. Inclusion of hospital discharge as a risk factor of severity to the acute care setting may help providers to intervene care transitions and improve the cycle of re-hospitalization.