

INAPPROPRIATE USE OF URINARY CATHETERS AMONG HOSPITALIZED ELDERLY PATIENTS

Hypothesis / aims of study

Prolong urinary catheter use may lead to substantial complications and are often prescribe in hospitals without defined indications. Unfortunately, elderly patients were at greater risks of inappropriate use of urinary catheters. Studies of factors and clinical outcomes associated with inappropriate use of urinary catheters in the elderly population are rare. Therefore, the purpose of this study was to explore the incidence, rationales, related factors and clinical outcomes for inappropriate use of urinary catheters among hospitalized elderly patients.

Study design, materials and methods

A longitudinal study enrolled patients aged 65 years and older with urinary catheter placed within 24 hours of hospitalization were conducted. Sample size was estimated by using G power 3.1.7. Based on previous study, the lowest parameter of relationship between inappropriate urinary catheter-days and CAUTIs was used for estimation (Odds ratio: 1.39). Other estimating parameters included the probability of Type I error 0.05 and power 0.8. It was estimated that at least 351 patients were required for this research. Criteria for urinary catheter use were developed to identify inappropriate catheter use. Characteristics of patients and catheter use, voiding function history, health conditions, care conditions of catheter placement, conditions of urinary catheter re-insertion, and subjective perception of urinary catheter use were collected through reviewing of medical records, interviewing patients or their primary caregivers. Mortality, length of hospital stay, time to first removal of catheter, catheter remaining in place at discharge, catheter-associated urinary tract infections (CAUTIs), catheter-related complications, change of activities of daily living (ADLs), and new admission to nursing home after discharge determined as clinical outcomes.

Results

A total of 327 patients were observed; 6 patients admitted to intensive care units were excluded from the study, leaving 321 patients for evaluation. The incidence of initial inappropriate placement of urinary catheters (IIPC) in hospitalized elderly patients was 38.3%. The main reason for IIPC was "convenience of care". Factors associated with IIPC were chronic constipation, urinary tract infection history, medical treatment diagnosis, cognitive impairment, depressive symptoms, independence in ADLs, insertion of catheter during evening and night shifts, and lack of nursing documentation of the rationale for catheterization. Patients with IIPC showed greater decline in ADLs. Among 321 patients, a total of 1958 urinary catheter-days were observed, 1035 (52.8%) urinary catheter-days were inappropriate. Inappropriate use of urinary catheters occurred mostly in females and surgical patients, and was associated with IIPC and lack of medical documentation. "Convenience of care" was the most common rationale for inappropriate use. Increasing inappropriate catheter-days was a significant predictor for longer hospital stay, delayed time to removal of catheters, increased rate of urinary catheterization at discharge, development of CAUTIs and catheter-related complications, and decline in ADLs. The incidence of catheter re-insertion was 20.6%, of which 49.5% of them were improperly re-inserted. The most common rationale for inappropriate urinary catheter re-insertion (IUCR) was "uncompleted documentation". Patients with IUCR had more inappropriate urinary catheter-days before re-insertion. However, IUCR did not show significant association with clinical outcome.

Interpretation of results

Avoiding IIPC is vital. Elderly patients with many physical and psychological deficits may become the victims of IIPC. Vulnerable elders need more toileting assistance, which result in nurses may request a physician order for a urinary catheter to reduce workload. Nurses' awareness of indications for urinary catheters may prevent IIPC. Continuing education may be needed to enhance nurses' knowledge and appropriate attitude related to the urinary catheter placement. In addition, investing in personnel to address the extra time and effort required to assist for toileting may necessitate reducing IIPC.

Perhaps the most important task to perform after placement of the catheter is maintaining awareness of its existence. Lack of documentation may indicate that clinicians did not pay attention to the existence of urinary catheters. This study highlights the construction and deployment of catheter reminder intervention to notify clinicians of patients experiencing urinary catheter use. This is critically important as limiting the inappropriate urinary catheter-days appear to be the best approach to prevent adverse outcomes. Of note, the study found increased inappropriate urinary catheter-days were independently associated with increased caregivers' and patients' perception of convenience. Patients and their caregiver are unaware of the association of urinary catheter use and adverse outcomes. These findings highlight the importance of clinical education to patients and their caregivers to reverse the misconception of convenience of care in using urinary catheters, thus reducing adverse outcomes and enhancing the safety of catheter use. To guarantee high quality of urinary catheter use, formulating hospital-level clinical policy in the use of urinary catheters is extremely important and should include concrete regulation of documentation and specific education protocol for patients and their caregivers.

Concluding message

Older patients are at greater risk of inappropriate use of urinary catheters. Inappropriate use may lead to substantial complications in older patients. To eliminate inappropriate catheter use, formulating hospital-level clinical policy in the use of urinary catheters is extremely important and should include concrete regulation of documentation and specific education protocol for health care professions, patients and their caregivers.

Disclosures

Funding: This work was supported by the Ministry of Science and Technology, R.O.C (NSC-102-2314-B-006-001) **Clinical Trial:** No **Subjects:** HUMAN **Ethics Committee:** Institutional Review Board of the National Cheng Kung University Hospital **Helsinki:** Yes **Informed Consent:** Yes