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Comprehensive versus standard care in post-severe acute kidney injury survivors, a randomized controlled trial

Peerapat Thanapongsatorn[1,2†], Kamolthip Chaikomon[3†], Nuttha Lumlertgul[2,4], Khanitha Yimsangyad[2], Akarathep Leewongworasingh[2], Win Kulvichit[1,2], Phatadon Sirivongrangson[5], Sadudee Peerapornratana[2,4,6], Weerachai Chaijamorn[7], Yingyos Avihingsanon[9] and Nattachai Srisawat[2,4,8,9*]

Abstract

Background: Currently, there is a lack of evidence to guide optimal care for acute kidney injury (AKI) survivors. Therefore, post-discharge care by a multidisciplinary care team (MDCT) may improve these outcomes. This study aimed to demonstrate the outcomes of implementing comprehensive care by a MDCT in severe AKI survivors.

Methods: This study was a randomized controlled trial conducted between August 2018 to January 2021. Patients who survived severe AKI stage 2–3 were enrolled and randomized to be followed up with either comprehensive or standard care for 12 months. The comprehensive post-AKI care involved an MDCT (nephrologists, nurses, nutritionists, and pharmacists). The primary outcome was the feasibility outcomes; comprising of the rates of loss to follow up, 3-d dietary record, drug reconciliation, and drug alert rates at 12 months. Secondary outcomes included major adverse kidney events, estimated glomerular filtration rate (eGFR), and the amount of albuminuria at 12 months.

Results: Ninety-eight AKI stage 3 survivors were enrolled and randomized into comprehensive care and standard care groups (49 patients in each group). Compared to the standard care group, the comprehensive care group had significantly better feasibility outcomes; 3-d dietary record, drug reconciliation, and drug alerts ($p < 0.001$). The mean eGFR at 12 months were comparable between the two groups (66.74 vs. 61.12 mL/min/1.73 m^2, $p = 0.54$). The urine albumin: creatinine ratio (UACR) was significantly lower in the comprehensive care group (36.83 vs. 177.70 mg/g, $p = 0.036$), while the blood pressure control was also better in the comprehensive care group (87.9% vs. 57.5%, $p = 0.006$). There were no differences in the other renal outcomes between the two groups.

Conclusions: Comprehensive care by an MDCT is feasible and could be implemented for severe AKI survivors. MDCT involvement also yields better reduction of the UACR and better blood pressure control.

Trial registration Clinicaltrial.gov: NCT04012008 (First registered July 9, 2019).

Keywords: Post-acute kidney injury, Comprehensive care, Severe AKI, Critically ill patients, AKI survivors

Introduction

Acute kidney injury (AKI) is estimated to occur in 7–18% of patients in hospital, and approximately 50% of patients admitted to the intensive care unit (ICU) [1, 2]. Moreover, AKI survivors are at an increased risk of chronic kidney disease (CKD), end-stage renal disease, progression of albuminuria, and mortality [3–6]. Post-severe AKI

*Correspondence: drnattachai@yahoo.com; nattachai.sr@chula.ac.th
†Peerapat Thanapongsatorn and Kamolthip Chaikomon have contributed equally to this work
[9] Division of Nephrology, Department of Medicine, Faculty of Medicine, King Chulalongkorn Memorial Hospital, Bangkok 10330, Thailand
Full list of author information is available at the end of the article