

Retrospective Review to Identify Risk Factors for AKI in Non-Cardiac, Postoperative Patients

AKI & CRRT Conference



Leslie Williams, PharmD, BCPS, BCCCP; Sydney Richardson, PharmD, MBA;
Eugene Kolomiyets, PharmD, MHA, BCPS, BCCCP; Anthony O'Brien, PharmD, BCIDP
Department of Pharmacy, Memorial Regional Hospital, Hollywood, FL

Abstract

Acute kidney injury (AKI) is a common postsurgical complication that heavily impacts morbidity and mortality, which can lead to decreased quality of life. Despite the prevalence of AKI, the incidence and impact of AKI in non-cardiac, postsurgical patients has not been well documented.

The aim of this study is to identify potential pharmacological risk factors for AKI in non-cardiac, postsurgical patients and evaluate a valid screening tool for the prediction of AKI. The goal is to add research to healthcare that decreases postsurgical AKI incidence.

Introduction

A common complication for patients undergoing surgery is postoperative acute kidney injury, AKI. AKI is associated with higher risks of mortality and morbidity which demonstrates how imperative it is to improve early recognition and preoperative, perioperative, and postoperative risk management (Bihorac, 2015). There are numerous factors that should be taken into consideration when determining AKI occurrence, including comorbidities and medication use. Proper identification of risk factors in literature and studies can prove to be an issue due to the various criteria for acute kidney injury. The numerous definitions for AKI has led to inconsistencies in patient care, making it difficult to provide a standardized approach to identifying AKI risk factors. Accurately identifying risk factors could potentially reduce the incidence of AKI in postoperative patients. The increased incidence of AKI in postoperative patients is well documented however, the determination of potential risk factor identification has not been well studied, especially in non-cardiac, post-surgical patients which is the reason for this study (Boyer et al. 2022).

The need for a streamlined evaluation of risk factors is crucial as surgery is common in the United States. On average, Americans undergo roughly seven surgeries in the course of a lifetime (Bihorac, 2015). The significance of surgical procedures for the average American demonstrates the relevance and the impactful need for uniformity in the hopes of potentially reduced incidences of AKI and other complications from surgery. Although there are numerous complications that can arise post surgery, AKI is especially important to study because AKI has major potential for long term consequences (Wilson et al., 2016). There are major long term consequences from AKI even if the AKI is fully resolved as it can increase the risk of chronic kidney disease, hemodialysis and mortality.

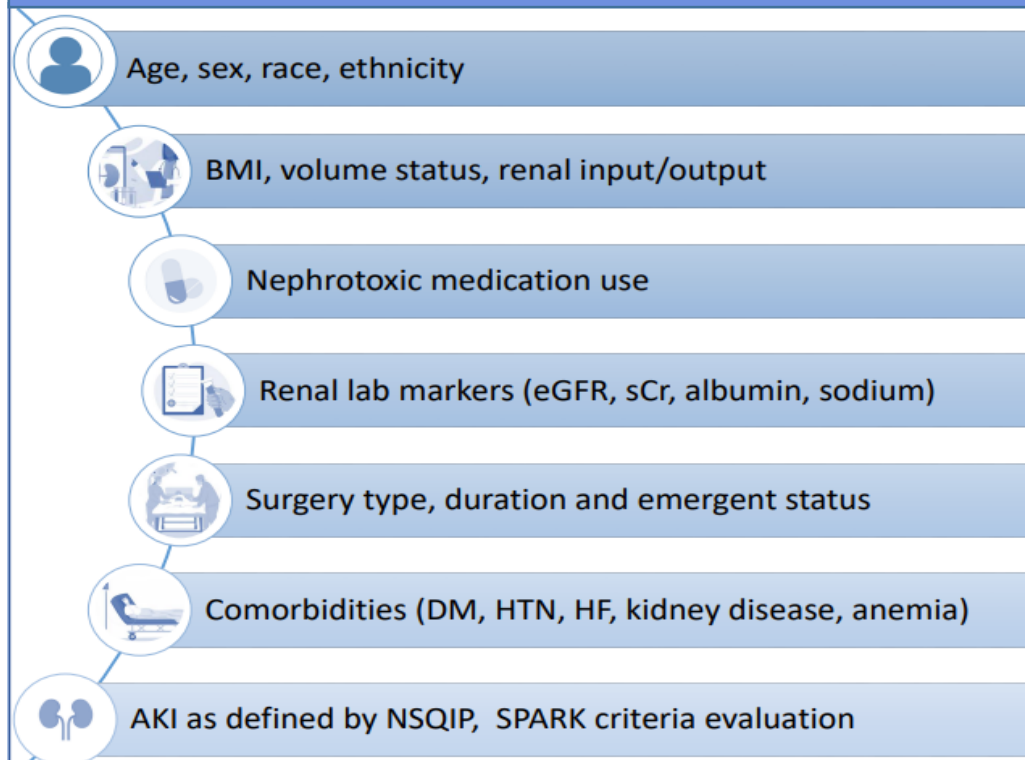
The aim of this study is to evaluate potential risk factors for AKI in non-cardiac, postoperative patients with the goal of adding research to this topic. The ACS NSQIP criteria for AKI will be used in this study. The data collected is based on 30 day outcomes and collects data from the actual patients' chart as opposed to using billing or insurance claim data allowing for consistent, informative data producing detailed, quality analysis (Bilimoria et al., 2013). The SPARK tool will also be examined in this study for its positive predictive value as a potential tool for identifying preoperative risk factors for AKI including age, eGFR, albumuria, sex, surgery duration, emergency operation, diabetes, RAAS blockade use, hypoalbuminemia, anemia and hyponatremia (Parks et al., 2019).

Methods and Materials

This is a retrospective, case-control study of non-cardiac, postsurgical patients 18 years and older who were treated at a large, South Florida public hospital from July 2021 through June 2022. This study will include data collection from chart review analyses using the hospital's electronic health records for 170 patients who underwent non-cardiac surgery during the hospital encounter, 85 with AKI as defined by the National Surgical Quality Improvement Program (NSQIP) and 85 without AKI.

The primary outcome of this study is to determine if medications play a role in AKI, with a specific focus on pharmacologic classes. The secondary outcome will evaluate the Simple Postoperative AKI Risk (SPARK) classification tool as a predictor of AKI in non-cardiac, postsurgical patients. This study will be analyzed using descriptive and correlation data.

List of Data Elements



Results

Pending as data collection is currently in progress.

Discussion

AKI incidence in non-cardiac, postsurgical patients has not been well documented and studied. The aim of this study is to evaluate potential risk factors for AKI in non-cardiac, postsurgical patients with the goal of adding research to healthcare. By evaluating the accuracy of risk factor identification for AKI, efforts can be made to mitigate the incidence of AKI in patients undergoing non-cardiac surgical procedures including the potential reduction of long term health consequences as well as healthcare costs.

Conclusions

Pending as data collection is currently in progress.



THE 28TH INTERNATIONAL CONFERENCE ON
ADVANCES IN CRITICAL CARE NEPHROLOGY
AKI & CRRT 2023

MARCH 29 - APRIL 1 SAN DIEGO, CALIFORNIA