Topic Brief: Brain Injury and Chronic Kidney Disease

Date: 1/11/2022
Nomination Number: 0966

Purpose: This document summarizes the information addressing a nomination submitted on December 2, 2021 through the Effective Health Care Website. This information was used to inform the Evidence-based Practice Center (EPC) Program decisions about whether to produce an evidence report on the topic, and if so, what type of evidence report would be most suitable.

Issue: The nominator would like more information and new research on the intersection of brain injury and chronic kidney disease to better inform the treatment of a relative who suffers from these conditions.

Findings: The EPC Program will not develop a new evidence product because this nomination focuses on new research.

Background

Traumatic brain injuries (TBI) may be caused by a bump, blow, or penetrating injury to the head, and affect the brain's functioning. In 2019, approximately 61,000 people in the United States died from TBI-related conditions.[1]

Complications such as non-neurological organ dysfunction are common in TBI patients, and may result from catecholamine and/or neuro-inflammatory responses, or as a complication of treatment.[2] Outcomes are poorer when multiple organ dysfunction occurs.[3] Organ dysfunction resulting from TBI may include kidney injury. Acute kidney injury can develop as a function of TBI injury severity or inappropriate medical strategy. One study noted an incidence of 19.8 percent acute kidney injury among TBI patients.[4] Another study reported higher incidence of chronic kidney disease in patients with TBI than in controls (8.99 vs 7.4 per 1000 person-years), but no difference in risk of end stage renal disease between the groups.[5]

Organ dysfunction or failure in TBI patients may lead to the development of other non-neurologic chronic conditions. Adults with multiple chronic conditions have worse health-related quality of life, higher health care costs, and increased risk of death. In 2018, about 27 percent (68 million) noninstitutionalized civilian adults in the United States had at least two chronic conditions.[6]

Related Resources

We identified additional information in the course of our assessment that might be useful.

Several reviews have been conducted recently regarding multiple chronic conditions. While they may not be useful in providing information on direct patient care, they may provide an overview of current research priorities in the field.

One of the review evaluated emerging and current models to treat and support patients with multiple chronic conditions, and identified themes related to approaches to care for multiple chronic conditions: assessment of social risk factors; including home-based care; including supports outside of the clinical setting; and incorporating community resources.[7] Another review evaluated whether health information technology helps people with multiple chronic conditions by supporting self-management, care coordination, and algorithms to support clinical decision making, but there was not sufficient evidence to make this determination.[8] Finally, an AHRQ EPC program scoping review of person and family engagement for multiple chronic conditions found that the evidence is limited.[9] A review by Cochrane evaluated the effectiveness of health-service or patient-oriented interventions for improving outcomes in people with multimorbidity. Effective interventions were demonstrated for the mental health outcomes, patient-reported outcomes, medication adherence, patient-related health behaviors, and provider prescribing behavior and quality of care.[10]

Patients with TBIs and their caregivers may benefit from attending brain injury support groups, such as one offered online by Pennsylvania University: https://www.pennmedicine.org/for-patients-and-visitors/find-a-program-or-service/neurology/traumatic-brain-injury/tbi-support-group

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