



Topic Brief: Chronic idiopathic hyperbilirubinemia and Parkinson's Disease

Date: 11/6/2019

Nomination Number: 879

Purpose: This document summarizes the information addressing a nomination submitted on 11/11/2019 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 notes that symptoms of kernicterus in infants are similar to those in adults with Parkinson's disease. Kernicterus is brain damage in infants that is caused by very high blood levels of bilirubin. He is wondering if elevated bilirubin levels could cause or increase the risk of Parkinson's disease. He has a particular interest in a condition that he is diagnosed with, chronic idiopathic hyperbilirubinemia.

Program Decision: The EPC Program will not develop a new evidence review because the nominator is interested in primary research which is outside the core activities of the EPC Program.

In addition epidemiologic studies do not identify elevated bilirubin as a risk factor for the development of Parkinson's disease. The three conditions mentioned in the nomination, kernicterus, chronic idiopathic hyperbilirubinemia and Parkinson's disease, have different causes for the elevated bilirubin and jaundice; and disabilities in Parkinson's patients are not related to the levels of bilirubin and jaundice.

Background

- Kernicterus is a type of brain damage that can result from high levels of bilirubin in a baby's blood. This can lead to seizures and can cause cerebral palsy and hearing loss. Kernicterus also causes problems with vision and teeth and sometimes can cause intellectual disabilities.¹
 - Risk factors include prematurity, feeding difficulties, bruising from birth, blood type, and East Asian or Mediterranean descent.
 - Early identification of jaundice (caused by elevated blood level of bilirubin) in newborns can prevent kernicterus.
- Chronic idiopathic jaundice, or Dubin-Johnson Syndrome is a genetic disorder which is characterized by mild jaundice.² Jaundice is typically the only feature of this syndrome. People with this disorder are unable to move bilirubin from the liver, and it builds up in the bloodstream causing jaundice. No specific treatment is required, and it does not generally shorten one's lifespan.
- Parkinson's disease is a brain disorder that leads to tremors, stiffness and problems with walking and balance. It is caused by degeneration of neurons that produce dopamine in the

brain. It is not known what causes this degeneration. Most people develop this disease at about 60 years old.³

- Risk factors associated with Parkinson's disease include exposure to pesticides, high consumption of dairy products, history of melanoma and traumatic brain injury.⁴
- Studies have found an association between elevated bilirubin levels in people with early Parkinson's disease. It is thought that it is related to oxidative stress in early stages of the disease.^{5, 6}

Assessment Methods

We assessed nomination for priority for a systematic review or other AHRQ EHC report with a hierarchical process using established selection criteria. Assessment of each criteria determined the need to evaluate the next one.

1. Determine the *appropriateness* of the nominated topic for inclusion in the EHC program.
2. Establish the overall *importance* of a potential topic as representing a health or healthcare issue in the United States.
3. Determine the *desirability of new evidence review* by examining whether a new systematic review or other AHRQ product would be duplicative.
4. Assess the *potential impact* a new systematic review or other AHRQ product.
5. Assess whether the *current state of the evidence* allows for a systematic review or other AHRQ product (feasibility).
6. Determine the *potential value* of a new systematic review or other AHRQ product.

Summary of Selection Criteria Assessment

AHRQ's EPC Program synthesizes existing research with the goal of helping consumers, health care professionals, and policymakers make informed and evidence-based health care decisions. The EPC Program does not perform primary data analysis.

In addition the three conditions mentioned in the nomination are distinct, and studies do not indicate a link between them at this time.

References

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Conflict of Interest: None of the investigators have any affiliations or financial involvement that conflicts with the material presented in this report.

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