

# Pancreatitis In Poorly Controlled Classic Homocystinuria

Rana Aljaberi, MD<sup>1</sup>, Lindsay Romo, MD, PhD<sup>2</sup>, MD, Harvey Levy, MD<sup>2</sup>, Can Ficicioglu, MD, PhD<sup>3</sup>, Taeylor Mellor RD<sup>3</sup>, Madeline Steffensen NP<sup>3</sup>, Bryan Hainline, MD, PhD<sup>4</sup>, Michael Gambello, MD, PhD<sup>1</sup>, Hong Li, MD, PhD<sup>1</sup>

<sup>1</sup> Department of Human Genetics, Emory University, School of Medicine, Atlanta, GA , <sup>2</sup> Division of Genetics & Genomics, Department of Medicine, Boston Children’s Hospital and Department of Pediatrics, Harvard Medical School, Boston, MA, <sup>3</sup> Division of Human Genetics, Children’s Hospital of Philadelphia, Philadelphia, PA , <sup>4</sup> Department of Medical and Molecular Genetics, Indiana University School of Medicine, Indianapolis, IN

## Introduction

Classic homocystinuria (HCU) is an autosomal recessive disease caused by a pathogenic mutation in each copy of the CBS gene.

The primary clinical complications in untreated HCU patients affect the eyes, skeleton, central nervous system, and vascular system.

Pancreatitis (inflammation of the pancreas) is an uncommon complication but has been reported in six patients with late diagnosis, except for one patient diagnosed at birth. All these patients had uncontrolled disease. Pancreatitis has resolved in four patients, while two patients were deceased

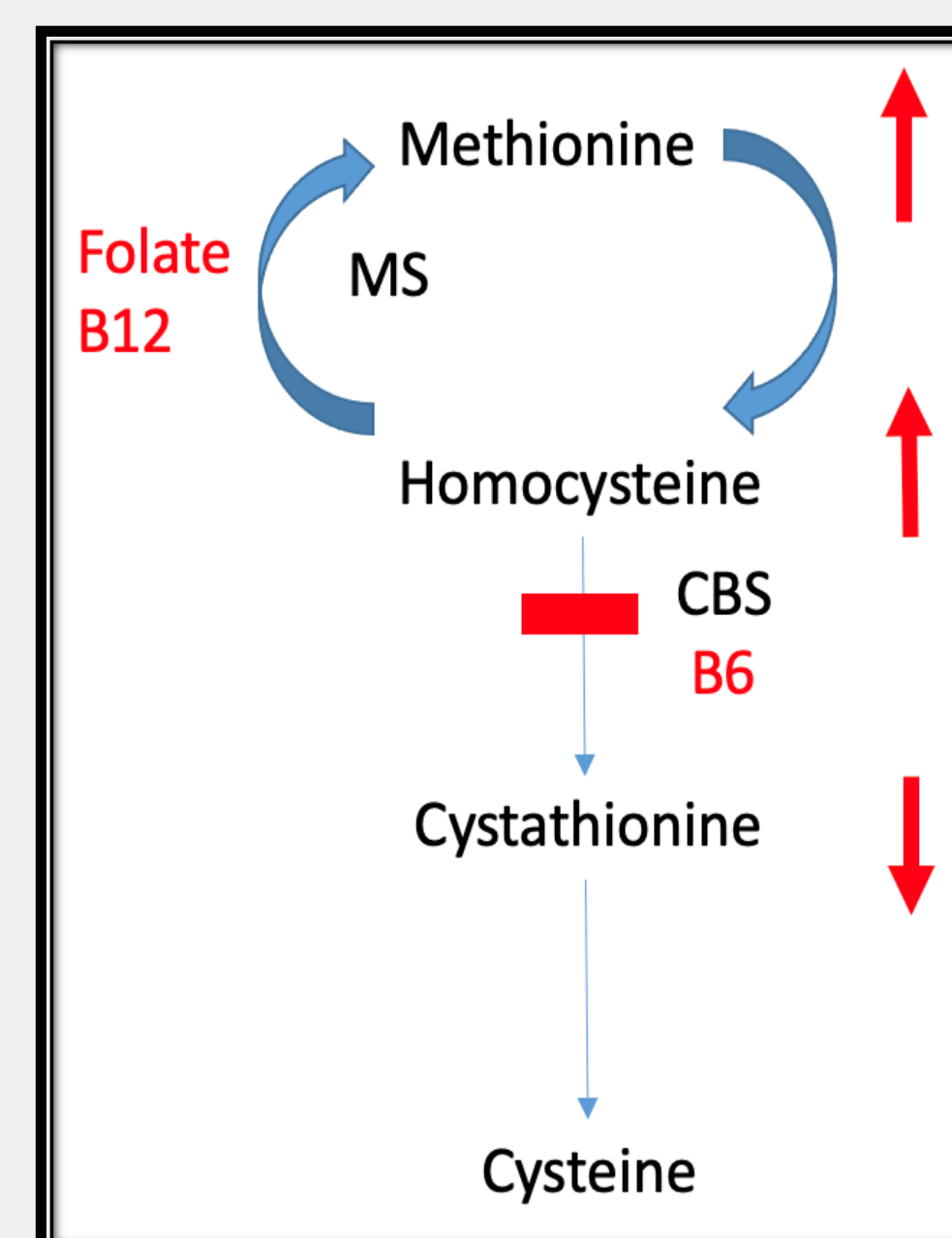


Figure 1: Homocystinuria Pathway

## The Pancreas

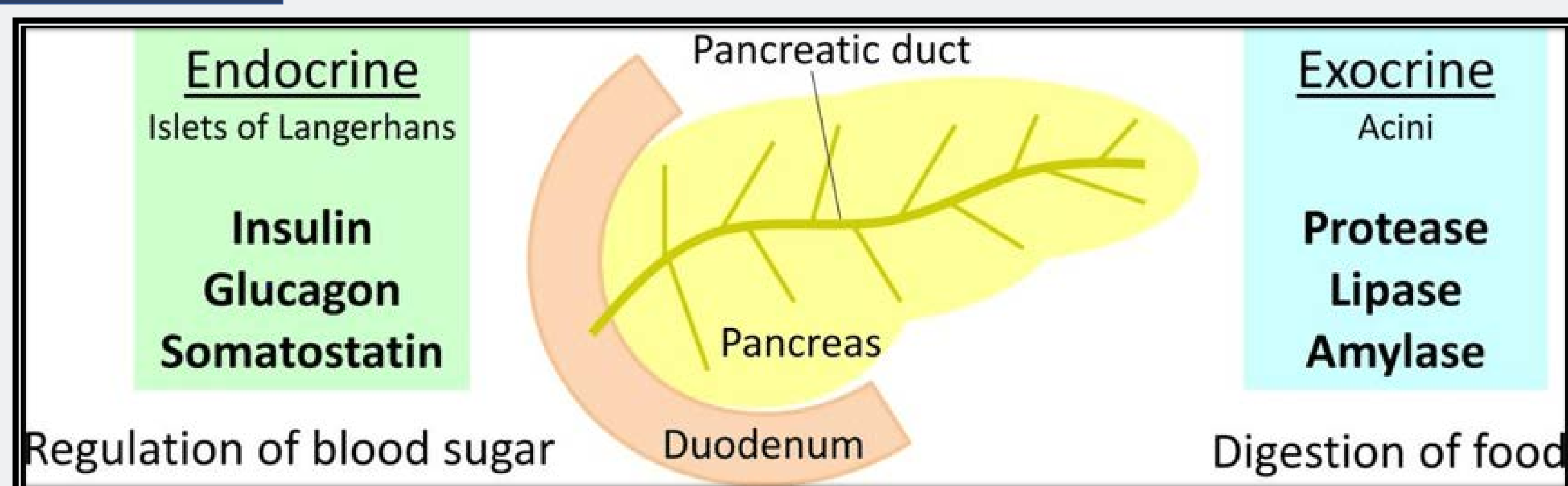


Figure 2: The functions of the Pancreas



Figure 3 : Symptoms of Acute Pancreatitis

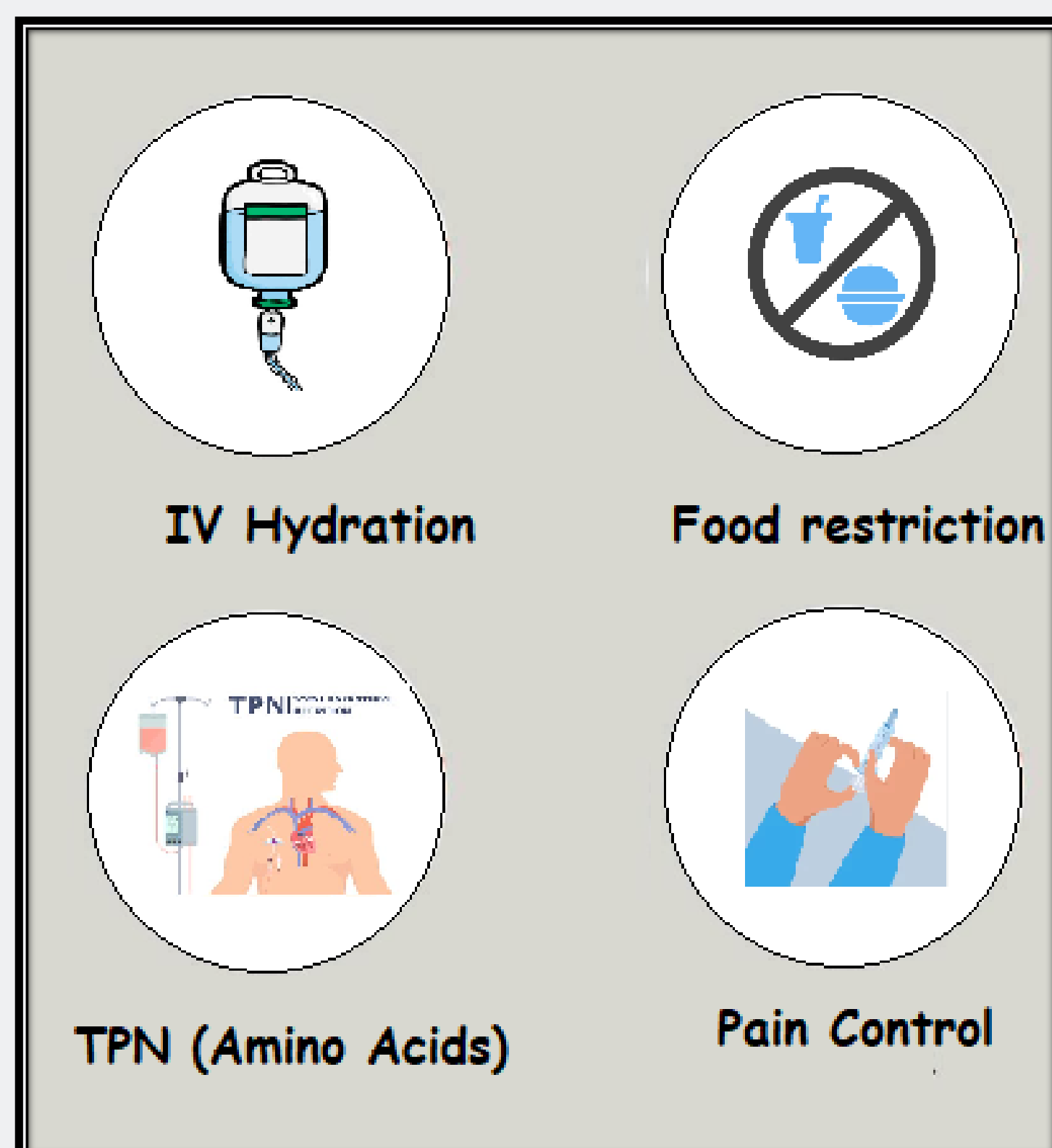


Figure 4: Management of Acute Pancreatitis

## Cases Presentation

Patient	Age Gender	Features of HCU	HCU control	Pancreatitis age of presentation	Pancreatitis recurrence	Pancreatitis outcome
P1	15 y Male	<ul style="list-style-type: none"> <li>Marfanoid Habitus</li> <li>Intellectual disability</li> <li>Psychiatric illness</li> </ul>	Uncontrolled	14 y	One episode	Diabetes requiring insulin
P2	24 y Female	<ul style="list-style-type: none"> <li>Thromboembolism</li> <li>Psychiatric illness</li> </ul>	Uncontrolled	16 y	Four episode	Diabetes requiring insulin Deceased (respiratory failure)
P3	14 y Female		Uncontrolled	8 y	Five episodes	Pancreatic insufficiency and diabetes
P4	27 y Male	<ul style="list-style-type: none"> <li>Marfanoid Habitus</li> <li>Psychiatric Illness</li> </ul>	Uncontrolled	15 y	Three episodes	Chronic pancreatitis

## Conclusion

- Pancreatitis can be the initial presentation of classic homocystinuria
- Compliance to treatment and maintaining total homocysteine levels in the therapeutic range can prevent pancreatitis
- Abdominal pain and vomiting or anorexia warrants a pancreatitis workup in HCU as it can change management

## Discussion

The etiology of pancreatitis in HCU is unknown but is likely linked to elevated homocysteine levels associated with poorly controlled disease. Thrombosis and inflammation may also contribute to its development.